RESOURCE GUIDE TO THE PEOPLE'S REPUBLIC OF CHINA

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Compiled by

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IDRC Mission

8 - 17 September 1980

IDRC CHINA TRIP

Sept. 8-17, 1980

Delegation

Ivan L. Head	- President
Joseph H. Hulse	- Director, Agriculture, Food and Nutrition Sciences Division
John E. Woolston	- Director, Information Sciences Division
John Gill	- Director, Health Sciences Division
Nihal Kappagoda	- Vice-President Planning
Jingjai Hanchanlash	- Regional Director, Asia
Ann Carson Head	- Secretary to the Delegation

Arrival date (Beijing)

Monday, September 8, 1980, 1350 hours
(via PK753 from Tokyo)

Departure date (Beijing)

Wednesday, September 17, 1980, 0900 hours
(via CA929 to Tokyo)

LIST OF PROPOSED INSTITUTIONS AND KEY PERSONS TO BE INCLUDED ON THE ITINERARY AS PER IDRC AREA OF INTEREST

1. SCIENCE AND TECHNOLOGY 科学技术

State Scientific and Technology Commission *(Whole Group)*
中国科学技术委员会
Office of Policy Research - Wu Mingyu
政策局

Scientific and Technical Association *(Whole Group)*
中国科学技术协会
Science Policy Director - Bao Tong
科学政策长

Institute of Scientific and Technical Information (ISTIC)
中国科学技术情报研究所
Deputy Director - Wang Wei
Director, Methodology - Yao Wei fan *(Woolston)*

Chinese Academy of Sciences
中国科学院
Institute of Computer Technology *(Woolston)*
計算技术研究所

List of proposed institutions and key persons - continued

2. AGRICULTURE, FOOD AND NUTRITION SCIENCES *(Hulse)*

农业 食料 营养

Ministry of Agriculture and Foresty

农食部

Deputy Director - Ma Ling

Bureau of Freshwater Fisheries - Chang Yangchang

淡水渔业部

Ministry of Food

食粮部

Chinese Academy of Agricultural Sciences

中国农业学院

Chinese Academy of Forestry Sciences

中国林学院

China Agronomy Society

中国农艺学协会

Chinese Association of Agriculture

中国农业协会

China Aquatic Products Society

中国水产协会

Scientific Research Institute of Food Fermentation Industry
Ministry of Light Industry

Director - Wang Yi-Ta
Deputy Director - Yin Tsung-Lun

List of proposed institutions and key persons - continued

3. SOCIAL SCIENCES

社会学

Ministry of Education *(Kappagoda)*

教育部

Ministry of Higher Education

高教育部

Educational Research Policy

教育研究

Chinese Academy of Social Sciences

中国社会学院

Institute of Agricultural Economics

农业经济研究所

China University of Science and Technology *(Whole Group)*

中国科学技术大学

Ministry of Economic Relations with Foreign Countries

对外经济部

People's University

中国人民大学

List of proposed institutions and key persons - continued

4. HEALTH SCIENCES (Gill)

卫生学

Ministry of Public Health

卫生部

Chinese Academy of Medical Sciences

中国医学院

Institute of Epidemiology

流行病学研究所

Chinese Medical Society

中国医学协会

Research into Biomass

生物研究

Chinese Academy of Sciences

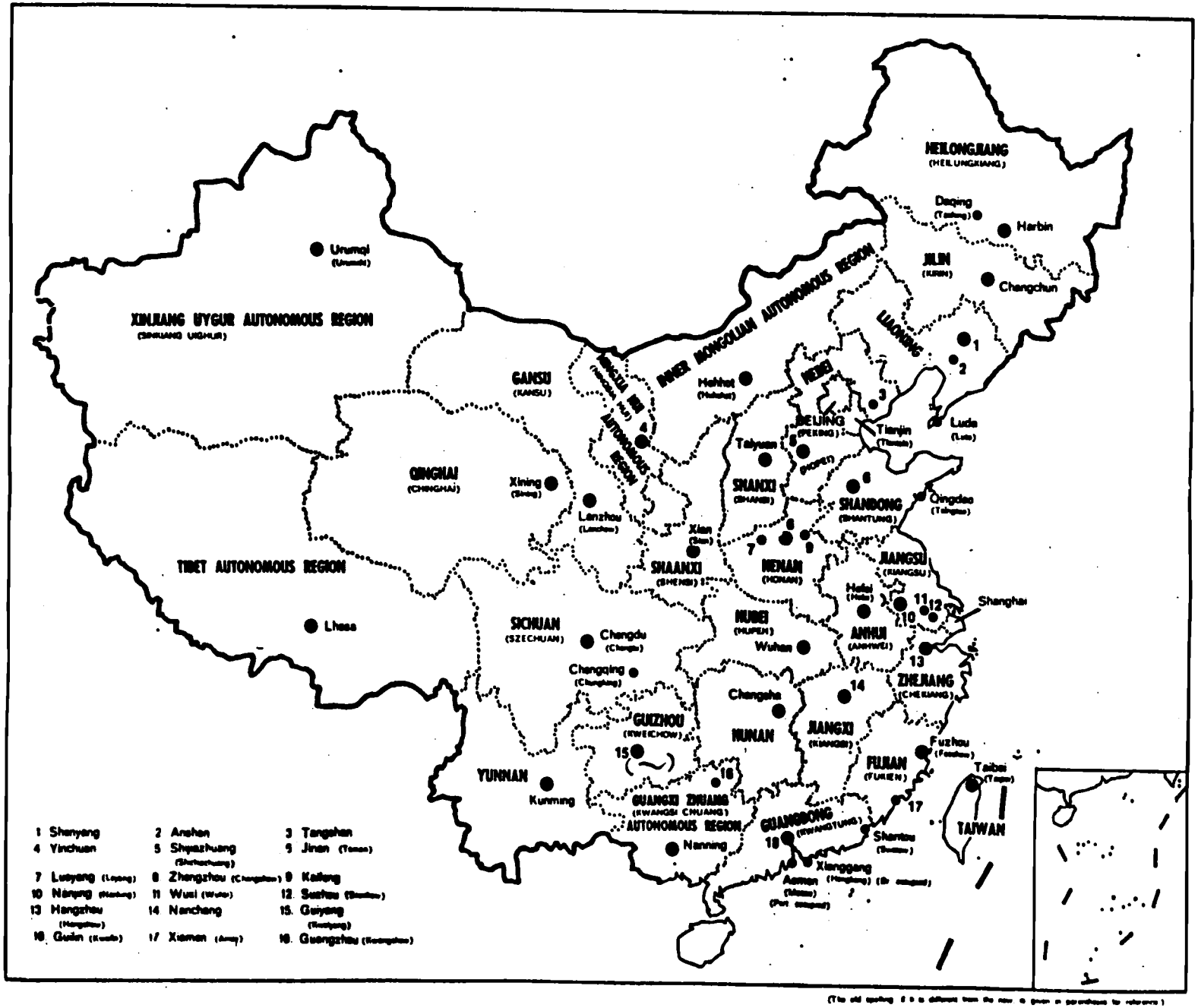
中国科学院

Institute of Zoology

動物研究所

Note: These institutions cover broad areas of IDRC interest and it is most likely that after discussions with high-level contacts in these places, members of the group will want to visit other relevant institutions on the advice of the Chinese. Additional suggestions have been made already and are contained in the relevant section of this Resource Guide.

GENERAL INFORMATION



(The old spelling of a is different from the new as given in parentheses for reference)

GENERAL INFORMATION

China covers an area of about 3 750 000 square miles, roughly a twelfth of the world's surface. It is very mountainous. The great plain is triangular, with its base line running roughly along the Yangtse River and its apex at Beijing. The two rivers, the Yangtse and Huangho (Yellow River), split the country into three horizontal bands. The northern bands are wheat-producing; the southern sub-tropical regions below the Yangtse are rice-producing. There are twenty-one provinces (twenty-two if Taiwan is included), five autonomous regions and three municipalities (Beijing, Shanghai and Tianjin) which are centrally controlled.

Approximately 10.7 percent of the land is cultivated, 12.7 percent is forest and 43.0 percent is grassland. Of the total workforce of some 443 million, approximately 75 percent work in agriculture and 25 percent in industry and government services.

GNP at constant (1978) prices was U.S.$352 billion (35 percent services, 37 percent industry and 28 percent agriculture). GNP at market prices (1978 figures) was U.S.$414 billion.

Population

At the National People's Congress, June 1979, a total population of 970 million, including Taiwan, was claimed, but until the next census figures are available (China is planning a new census and has bought several computers specifically for this) the true figure will not be known. Many believe the true figure to be one billion. Well over 80 percent live in rural areas and 60 percent are concentrated in the Eastern third of the country. Population growth is reported to be 1.2 percent but a vigorous family-planning campaign aims to reduce this to 0.5 percent by 1985 and zero by 2000. Approximately 6 percent of the population is made up of 60 ethnic minorities, living mainly in the Western parts of the country where Islam is still the only really viable religion. China, with an estimated 10 million Muslims, out-weighs the Gulf States in this respect.

Historical perspective

To understand modern China it is necessary to have some knowledge of China's past. The Chinese name for China is Zhonghua 中华 or, more simply, Zhongguo 中国, i.e. the flower at the centre or the 'middle' or central country. The Chinese first appeared as one of the earliest river-basin civilizations and the name signifies the origin of the tribe located around the Middle Yellow River. For several centuries, they were an isolated civilization gradually radiating outwards. The Han dynasty (206 BC - 220 AD), from which the modern Chinese take their name, made them the most advanced and powerful country in the area and China came to regard themselves as the only outpost of civilization, surrounded by barbarians and the name Zhongguo took on a more significant meaning. The Han dynasty officially adopted the teachings of Confucius, which taught virtue and morality amongst the leadership, order amongst the masses and filial piety in the home.

China's fortunes and development ebbed and flowed under successive dynasties but may be said to have reached the apex of its progress under the Tang dynasty (618 - 907 AD). Each era revealed something of particular note; for instance: Tang (poetry), Song (paintings) and Ming (pottery). The Song dynasty (960 - 1279) was sacked by the Golden Horde of Genghis Khan until ousted by the Ming dynasty in 1386, who, in turn, were deposed by the Manchus (Qing dynasty) in 1644. In spite of the external pressures, China remained a remarkably intact and homogeneous civilization for so long when other historical empires, i.e. Greek, Roman, etc. collapsed in relatively short periods of time. What sparked the technological revolution that made China of the twelfth century the most advanced nation on earth at the time is not clear, but is probably explained by the ability of the Chinese to keep ahead of their immediate neighbours in the most vital skills in the economic, technical and military spheres. The reasons for China's relative stagnation after 1350 and the failure to produce the equivalent of an Industrial Revolution such as occurred in the West have never been adequately explained but have tantalized historians for generations. Probably the best explanation has been attempted by the Oxford historian, Mark Elvin, who has suggested that China's very technical excellence at the time acted as a brake on further development, i.e. farming, water engineering and machines were so perfected in traditional terms that demand fell off and investments in further improvements were discouraged.

China continued to flourish in specific areas but politically fell into turmoil until in 1911 the Qing dynasty was overthrown by forces supporting Dr. Sun Yat-sen and confusion followed with warlords and bandits holding large pockets of the country and foreign powers holding the treaty ports and other concessions. In 1931 Japan invaded Manchuria and engulfed China in full-scale warfare until 1945. The extreme political factions in China united for a time to combat the Japanese threat but after Japan was defeated, the Communists, led by Mao Zedong, established themselves in the north and gradually extended their control, forcing the nationalist leader, Chiang Kai-shek, to flee the mainland to Taiwan. The People's Republic of China was proclaimed on 1 October 1949. In September 1965, at a meeting of the Communist Party Central Committee, Mao Zedong launched the so-called Cultural Revolution, which lasted effectively until his death on 6 September 1976. The period immediately following Mao's death has marked an abrupt change in the policies of the previous twenty-seven years since the revolution, and China is embarking on an entirely new era of development which is marked by a desire to modernize as rapidly as possible.

The capital city, Beijing (Peking), means literally 'northern' capital. The seat of government has changed several times in history as well as in modern times. Peking was first made the capital by Kublai Khan in 1267 AD. The Ming dynasty later established Nanking as the capital but in 1421 re-established the seat of government in Peking. The National Government of Chang Kai-shek made the capital Nanjing (Nanking), i.e. 'southern' capital, until the sacking of the city by the Japanese in 1938 forced him to flee to Chongqing (Chungking), the 'central' capital. The original name for Peking was Peiping meaning 'northern peace'. The nationalists in Taiwan still regard Nanjing as the capital of China and refer to Beijing as Peiping.

A Note on the Chinese Language

Chinese, with its idiophonographic script, is considered one of the oldest written languages. The earliest characters (pictographs) have been found cut into tortoise shells or burnt into animal bones. Over the past three millennia, chinese characters have changed enormously. Chinese is a tonal language. Each character represents one syllable in sound, each sound having though several different meanings. The growth of vocabulary over the centuries increased the numbers of characters to about 60,000, though only about 5,000 or so are actually of use in modern writing and, of these, about 3,000 are the most frequently used. The problems with a complex script, such as Chinese, is that although precise in meaning it presents enormous difficulties in terms of modern communication, especially telecommunication and computing.

To overcome this, a numerical code was developed but this has involved time-consuming transcriptions before and after a message. Early this century China sought to reform the language. The position was futher complicated, however, by the problem of dialects. China has several major dialects or languages within the one classification, Chinese, e.g. "Mandarin", now referred to in China as "common speech" spoken more in the north, and "Cantonese" mainly in the South. The difference between the two is roughly the difference between "English and French". The written script is the common base. In 1954 the Government established a language reform committee. It concentrated on: (1) getting everyone to speak one "language" i.e. Mandarin (putonghua); (2) simplication of characters (reducing the number of strokes) and (3) gradually adopting a latin form (pinyin). Romanization of Chinese has been on the ISO program for many years now and recent discussions make it likely that pinyin will be adopted as the international standard form of latinization. Meanwhile, the visitor may be excused from being confused. Pinyin was adopted officially in China in 1975 but the situation is not without problems. As the personal level some Chinese are still unsure how to render their names correctly for a visitor. You think you visited a person named so and so on the program but didn't his name appear different afterwards? Chou En-lai or Zhou En-lai, Teng Hsiao-p'ing or Deng Xiao-ping?

Although Pinyin is now written everywhere Chinese characters still remain and are expected to do so for a many years to come. The intricate relationship of the spoken and written word is much more intense than in other languages but to illustrate what I mean, the chinese symbol for "well", "jing" (井) is a key word in agricultural terminology since it denotes "fields" traditionally laid out along the lines of the drawn characters, Each "jing" was divided up into nine plots, to eight families were assigned the eight exterior plots, the one in the centre containing the well with four paths leading to it from the other fields, being reserved for work jointly on behalf of the landlord or state. Thus, is the basis for China's equalized system of land and taxation. The word for "earth" is denoted by the character "tu"(土) of which the upper horizontal stroke represents the surface of the soil, the lower line the sub-structure and the vertical stroke the vegetation. The word "field", "tian"(田) unmistakeably portrays a rice paddy. The character for "male" is a combination of this pictograph "field" with that of "strength" "li"(力) thus (男) literally, "labour in the Fields".

The character for "rice" "mi"(米) is derived from the idea of grains separated by threshing(十)

The traditional way of writing Chinese characters is from the top right hand corner down and then up again in vertical columns. Reading a book in this manner would be like starting at the back for Westerners. Newspapers have, until recently, used this method and variations of horizontal columns left to right or right to left. It is all very confusing. Politics has dictated, however, that the People's Republic have opted for *left* to right and, as one would expct, Taiwan has chosen to write *right* to left.

It is not easy or, often, advantageous to try to learn the rudiments of any language in the usually limited time prior to a trip of this sort, also one has to take into account the well-known complexity of the Chinese language. However, the Chinese, probably more than any other nation, tend to warm to those able to utter just a few simple phrases. As pointed out above, Chinese is a tonal language, so any attempt to master tones at this stage would be a waste of time, but the following basic phrases will be instantly comprehended and acknowledged.

Good morning: *Zao* (spoken with a Tz sound 'tzao').
How are you? (Standard form of greeting): *Ni Hao ma?* to which the reply is: *Hao Xiexie* (pronounced shieh-shieh) - I am well, thank you.

It is as well to remember *xiexie* as you will find you need to keep uttering it in response to various friendly gestures. At banquets it is usual also to 'clink' glasses and say *ganbei* which means, roughly, 'bottoms up'.

Finally, Goodbye is *Zaijian* (pronounced Tsaijian). It is usually repeated twice: *Zaijian, zaijian.* It means 'See you again'.

Economy

The establishment of the Chinese People's Republic on 1 October 1949 heralded a new social order in urban and rural areas. Agrarian reform was a major task and this was achieved rather rapidly, though by stages, beginning with promulgation of the Agrarian Reform Law in June 1950. Land confiscated from land-owners was redistributed to the poor peasants, who were first organized into mutual aid teams by communist cadres. In December 1953 Elementary Producer Cooperatives (EPC) were organized. In the EPC the peasants still retained right to land and livestock with only part given over to the cooperative in the form of a share on joining the cooperative. This was followed by Advanced Cooperatives (APC) in 1955. By 1956 some one million peasant households were organized into 750 000 APCs. In the APCs all land rights except for a small private plot, were abrogated and payment for use of tools or livestock was abolished. In 1958 the gradual process of merging APCs into larger units (communes) was started. The commune was a new unit of rural administration consisting of about 50 - 100 villages and upwards of 20 000 persons. This unit was split for productive purposes into brigades, teams and units. By 1959 some 750 000 APCs had been merged into 26 000 communes. In 1963 some 74 000 communes were in operation comprising some 700 000 brigades and 5 million

teams. On average there would be about seven to eight teams in a brigade and nine or ten brigades in a commune. The major priorities of the rural economy were rapid mechanization and self-sufficiency. The number of communes is now about 50 000.

The most troublesome sector since 1949 has been Chinese industry. The urban sector was never regimented to the same extent as its rural counterpart and for a time State and commercial enterprises flourished, first side by side, then in concert, until 1958 and the Great Leap Forward (GLF) called for a drastic reorganization of the industrial sector. The GLF was conceived to resolve, in one heroic effort, China's basic economic deficiencies and to sweep a nineteenth century China into the mid-twentieth century. Mao's personal contention was that a combination of ideological incentives, human willpower and improved management would resolve China's economic weaknesses. Small-scale rural industries were stressed and backyard iron smelting was promoted to augment China's steel deficiency. Irrational prices, the intricate system of wage rates, excessive political interference, lack of incentives and poor management resulted in a lagging industrial sector. By the late 1970s China's industrial capacity was badly out of tune. A fear of a leftist revival after Mao's death, lack of effective bonus schemes, and old management methods have taken a negative toll.

A new economic policy has recently emerged aimed at shaking up the economy and awakening the nation to its relative backwardness, symbolized by a GNP of less than $400 000, less than half Japan's, which only has about one-ninth of China's population. Policies have now been changed to encourage foreign capital and foreign advice.

The most important economic reorganization has been the readjustment of urban and rural incomes through the raising of food prices. The Chinese farmer is now getting 20 - 50 percent more for his grain, with the Government paying subsidies to avoid price rises for urban consumers. Urban workers received large wage rises recently to offset increases in meat and fish. Unemployment, especially amongst urban youth and youth returned from the countryside, is a major problem. The Government's response has been to encourage youth to set up cooperative ventures in small manufacturing industries and service trades.

China has large reserves of oil, coal and minerals. In the past, China has not exploited these resources for foreign currency, preferring to utilize its agricultural surplus to generate foreign exchange. This policy may now be reversed.

Canada-China trade is as follows:

Canadian exports to China ($ millions)		Canadian imports from China ($ millions)		Trade Balance	
1978	1979	1978	1979	1978	1979
503	461	92	131	411	330

Overview of Canada-China Relations

Building on the unofficial relationship which centred on wheat sales beginning in 1960 and on Canada's early recognition of Peking in 1970, Canada and China have developed over the past ten years a close, dynamic bilateral relationship. Canada has played as important a role as any smaller country in prodding China in the direction of a more outward-looking foreign policy and closer ties with the West.

At the political level, there have been a number of high-level visits, including Prime Minister Trudeau's visit to China in 1973, Secretaries of State for External Affairs Sharp, in 1972, and Jamieson, in 1978, Foreign Minister Huang Hua's visit to Canada in 1977 and an exchange of visits by our respective trade ministers, Mr. Horner and Mr. Li Quang, in 1979. Vice Premier Bo Yibo will visit Canada August 21-31, 1980. He is the highest ranking Chinese leader to visit this country. There have been increasingly frank and useful exchanges between our leaders on political, international and bilateral subjects.

Other recent visits have included delegations of the National People's Congress of China and the Canadian Parliamentary Association in 1978 and 1979 respectively; an official delegation which visited China in 1979 to help commemorate the fortieth anniversary of the death of Dr. Norman Bethune; and a 65-member delegation from the Canadian Institute of International Affairs, consisting mainly of a large number of prominent businessmen and a few academics, which visited China in April and May of this year.

Exchanges and bilateral programmes have grown substantially and have encompassed almost every area; besides economic contacts, these areas have included science and technology, music, painting, dance, sports, medicine, the media and education. To mention but a few, the Canadian Brass, the Toronto Symphony Orchestra, Frank Augustyn and Karen Kain, and Celia Franca have visited China in often precedent-setting tours, while Chinese acrobatic troupes and the Peking Opera have visited Canada.

In education, as China's modernization drive has led its leaders to look to the West for expertise, an arrangement to place Chinese mid-career scientists in Canadian institutions of higher learning brought some 190 Chinese scholars to Canada in 1979/80 and a renewal of the arrangement is expected to bring at least 100 more in 1980/81.

A highly successfull programme of family reunification has since 1973 been in effect, up to the end of 1979 reuniting some 5,600 Chinese with their relatives in Canada.

Scientific Research

Since 1949 the Chinese have tended to adopt the Soviet research structure which places a 'supreme academic organ' the Academy of Sciences, at the head of the national research structure. The Chinese Academy of Sciences as it was called, was generally formed out of the old pre-1949 Academia Sinica. The traditional Academia Sinica transferred to Taiwan, along with some of the professional scientists. Later several other 'Academies' were formed. In 1957, the Chinese Academy of Agricultural Sciences was formed from elements of the Ministry of Agriculture. This was followed in 1958 by the Chinese Academy of Medical Sciences. Under the aegis of these Academies of Science were numerous research institutes in various scientific branches, and at Provincial level there were branch academies, e.g. in Shanghai and Guangzhou.

The Academies of Science have not remained isolated from politics and during the brief twenty-year span both the organizations and the scientists themselves have been subject to change. The first such interruption came shortly after their foundation, with the 'Great Leap Forward' and the 'Hundred Flowers' movements; the former, typified by a massive drive to transform labour into physical capital, had massive repercussions on the scientific

establishment, and the latter attempted to 'free' intellectual discussion but led to harassment and imprisonment of some scientists. The creation of the State Scientific and Technology Commission in November 1958 confirmed the absolute political control of scientific research in China. All sciences became subservient to political planners and party representatives were visible at all levels in the research ladder. Scientific studies were integrated with the 'needs of production'. It is generally thought that very little theoretical research was initiated as a result. University research has traditionally received less emphasis in China; however, the work of some of the better institutions has been linked to work being done in the Academies. The universities come under the Ministry of Higher Education.

The Academies of Science received a further jolt in the mid-sixties with the onset of the Cultural Revolution. Internally, this meant many shake-ups; externally, the Academies split responsibilities and were supposed to relocate closer to the 'research needs of industry and agriculture'. The Chinese Academy of Agricultural Sciences became known as the Chinese Academy of Agriculture and Forestry Sciences and remained as such until 1978, when Forestry split off to form its own Academy, the Chinese Academy of Forestry Sciences. A new Chinese Academy of Traditional Medicine was also formed to reflect the importance of Chinese, as opposed to Western, medicine.

During the Cultural Revolution many scientists fell foul of the authorities for their supposedly 'revisionist' views and were either imprisoned or displaced to the countryside. The so-called 'May 7th Directive' was a key reform in this respect, in that it specifically required every male professional under the age of 60 and every female under 55 to indulge in physical labour for varying intervals. In addition, a minimum of 2.5 out of 6 working days in scientific institutions were to be spent on 'political study'. The emphasis of 'foreign science' in China was downplayed.

Since 1978 we can say there has been some normalization of scientific research. In spite of the swing of the political pendulum, the Academies of Science have survived and remain the most prestigious scientific centres of excellence.

China/Canada Scientific Exchanges

Significant advances have been made in scientific and technological cooperation with the PRC since Madame Sauvé led a delegation of Canadian scientists to China in 1973. Canadian scientific and technological missions have visited China with interests in such fields as agriculture, forestry, fisheries, seismology, metrology, economics, and veterinary medicine. Chinese delegations to Canada have also covered fields as diverse as petroleum, seismology, surface coal mining, laser research, forestry, fisheries, permafrost, biological insect control, surveying and mapping and engineering.

Scientific exchanges are an important component in our relationship with China. There is considerable interest in the Canadian scientific community in developing new areas of cooperation with the PRC and in gaining increased knowledge about the "state of the art" in China. Science is moreover an urgent priority in the PRC's modernization programme and the importance for China of increased SANDT exchanges with the industrialized world was recognized at a National Conference on Science held in Peking in March 1978. Scientific exchanges also complement and promote other Canadian programmes, in particular in the fields of General Relations, by increasing mutual knowledge and people-to-people contacts, and Trade Promotion, by exposing visitors to Canada to our expertise in the various fields where Canada has a reputation for excellence.

In this regard, the Chinese have expressed the view that SANDT exchanges play a role in our overall commercial relationship. While China is not at present in a position to sell to Canada as much as it buys, cooperation in Science and Technology goes some way towards establishing a more balanced relationship. Commercial ventures may at times appear more attractive to the Chinese side if they also provide for SANDT cooperation, such as the training of Chinese experts or the exchange of technical information. It has moreover been our experience that Chinese scientific and technical delegations visiting Canada are often attentive to commercial prospects in their field of expertise.

Canadian proposals for exchanges are submitted to the Chinese authorities at the end of each calendar year by our Embassy in Peking. Each side examines the list presented by the other and a bilateral package is thus agreed upon. While trade delegations pay for their own costs, it is the practice for the host country to pay the expenses (except for international travel) incurred by science and technological missions travelling to and from China. Because our scientific community is less integrated than that of a state-controlled economy, Canadian university groups or professional associations which operate under different budgetary conditions

than the government have found this formula prohibitive. The Chinese authorities have however accepted a suggestion made by the Secretary of State for External Affairs in January 1978, that exchanges which do not fall under the official exchange programme operate on a self-paying basis.

The present emphasis in the area of SANDT exchanges is to explore new areas of cooperation (such as transport and communications), to send smaller groups for more in-depth scientific discussions, and to facilitate a more regular exchange of information and material between Chinese and Canadian scientists.

Government

Hua Guofeng is presently Chairman of the Central Committee of the CCP and Premier of the State Council. Hua, who was born in Shaanxi province in 1921, succeeded Chou En-lai as Premier in April 1976, and his appointment as Chairman followed Mao's death in October 1976. Ye Jianying is Vice-Chairman, giving him second place in the leadership and the status, if not executive duties, of a head of state. Other Vice-Chairmen are: Deng Xiaoping, Li xiannian Chen yun and Wangdongxing.

In March 1978, the 5th National People's Congress (NPC) issued a revised constitution in which the highest organ of state is stated to be the NPC itself. The NPC is an elected body which meets annually. It has power to amend the constitution, enact laws and appoint ministers, accept national plans and state budgets, and declare war. The functions of the Congress are vested in a Standing Committee between sessions. There is no special provision for a head of state. The head of state is neither Hua nor Deng, as is usually imagined. Ye Jianying, as Chairman of the Standing Committe, roughly equates the position.

The constitution affirms the leading role of the Chinese Communist Party (CCP) (with only 36 million members out of a total population of 1 billion); it dominates government and all aspects of economic activity. Direction of CCP affairs is in the hands of Chairman Hua and a small Standing Committee (politbureau).

The executive organ of the NPC and the highest level of state administration is the State Council. This consists of the Premier (Hua Guofeng), who presides, and Vice-Premiers and Ministers. The State Council is responsible for administration and supervision of government at all levels. It drafts plans and budgets. Under it are several commissions, e.g. Scientific and Technology Commission, thirty-five Ministries and a few specialized bodies.

Politbureau

Chairman: Hua Guofeng
Vice-Chairmen: Ye Jianying, Deng Xiaoping, Chenyun, Wang Dongxing.

Ministers

Premier: Hua Guofeng
Vice-Premiers: Deng Xiaoping, Chenyun, Bo Yibo, Chen Muhua (Economic Relations with Foreign Countries), Chen Xianlian, Chen yonggui, Fang yi (Science and Technology), Geng Biao, Gu Mu, Ji Dengkui, Li Xiannian, Wang Renzhong, Wang Zhen, Xu Xiangqian, Yao Yilin, Yu Qiuli.

Ministers (relevant listing only)

Huo Shilian (Agriculture)
Yang Yigong (Agricultural Machinery)
Chen Guodong (Food)
Luo Yuchuan (Forestry)
Jiang Yizhen (Health)
Qian Xinzhong (Public Health)
Jiang Nanxiang (Education)

Commissions (relevant listing only)

Agriculture:	Wang Renzhong
Economic:	Kang shi'en
Planning:	Yu Qiuli
Science:	Fang yi

Ministry of Economic Relations with Foreign Countries

Minister: Chen Muhua
Vice-Ministers: Wang Daohan
Cheng Fei
Li Ke
Shi Lin
Wei Yuming
Directors: Xu Lijin
Chen Xingnong
Lu Xuejian
Zhang Wencheng
Deputy Directors: Yang Rongjie
Zhang Qi
Zhang Xianwu
Yan Peide
Zeng Qingchao
Li Buxiao
Wang Zichuan
Liu Helin
Mou Yongmao

Ministry of Agriculture

Minister: Huo Shilian
Vice-Ministers: Zhang Gensheng
Xiao peng
He Kang
Zhang Fuyuan
Liu Xigeng
Hao Zhongshi
Wang Changbai
Zhao Fan
Zhao Xiu
Zhu Rong
Li Youjou
Xu Yuanquan

Ministry of Farm Machinery

Minister: Yang Yigong
Vice-Ministers: Xiang nan
Liu Ng
Sun Fengshi

Ministry of State Farm and Land Reclamation

Minister: Gao Yang

Ministry of Forestry

Minister: Luo Yuchuan
Vice-Ministers: Yang Yansen
Wang Bin
Yang Jue
Yang Yangsen

Ministry of Education

Minister: Jiang Nanxiang
Vice-Ministers: Li Qi
Li Qitao
Liu Zhonghuo
Zhang Chengxian
Huang Xiubai
Liu Yangqiao
Yang Yunyu
Zhou Liu
Yong Wentao
Dong Chuncai
Guo yi
Pu Tongxiu
Liu Xuechu

Ministry of Public Health

Minister: Qian Xinzhong
Vice-Ministers: Huang shuze
Wang wei
Cui Yueli
Hu Zhaoheng
Guo Ziheng
Tan Yunhe
Yang shoushan
Ji Zongquan
Special Advisor: George Hatem

Foreign Relations -
Director: Xue Gongchuo
Deputy Director: Xu Shouren

Bureau of Chinese Medicine -
Director: Lu Bingkui

Scientific and Technical Association

Chairman (acting): Zhou Peiyuan
Vice-Chairmen: Liu Shuzhou
Mao Yisheng
Huang Jiasi
Pei Lisheng
Wan yi

Useful Telephone Numbers

Beijing (Peking)

Long distance,	International calls (English speaking)	33-7431
	Domestic	113
Airlines	Air France	
	2-2-41 Jianguomenwai 建国门外	52-3894
		(r)52-3678/3603
	CAAC Enquiries	55-3245
	Domestic	55-4415/3245
	International	55-7878/0626
	Japan Airlines	
	2-2-12 Jianguomenwai 建国门外	52-3457/3374
	Swissair	
	2-2-81 Jianguomenwai 建国门外	52-3284/3554
		3217
Ministry of Agriculture and Forestry		66-8581/1005
Foreign Affairs Office		66-5646
Ministry of Economic Relations with Foreign Countries		44-5678
Ministry of Public Health		44-3320/2142
Foreign Affairs Office		44-0531
Beijing Hotel, East Changan Avenue 東長安街		55-2231/8067
Post and Telegraph Office		55-5358
Main Post Office 电报大楼,西长安街		66-4900
West Changan Avenue		66-7895/6253
Telegrams		66-4426

Beijing (Peking)

Camera Repairs, 182 Wang fu jing 王府井 152号	55-4524
Capital Taxi Co. English spoken (State destination, present location, nationality)	55-7461
Globe and Mail Office, 2-2-31 San Li Tun (north) Cable: CANAGLOBE PEKING 三里屯(北)	52-1661
Canadian Embassy 10 San li Tun Lu 加拿大大使馆 (三里屯路10号)	52-1475/1571 1684/1741 1724
Ambassador's Residence	52-1326/1567

Shanghai

Long distance, International		56-5956
Telex		21-4632
Airlines	Japan Airlines 1202 Huai Hai Road C 淮海中路, 1202	37-8467
	Airport Office	53-6530

PERSONAL INFORMATION

Arrival

There is now a new air terminal in Beijing. The quaint halls of the old terminal redolent with garish murals of socialist realism but with walls of peeling varnish have been abandoned in favour of the universal style of all modern airports, modified only where a scarcity of materials or the peculiar demands of Chinese protocol have required - the arrival and departure lobbies, segregated from local travellers, contain not a single chair for public use - thankfully, the political slogans and massive statues of Mao have been left behind in the old airport. Waiting for one's baggage to appear on the carousel (which stops frequently and inexplicably), one cannot fail to be intrigued by the large amount of cartons that rise through the hatchway instead of one's own bag, all seemingly full of Japanese appliances. Most are claimed by eager Chinese delegations returning from abroad, and the rest by seasoned foreign businessmen and diplomats, to the evident glee of the Chinese friends and officials who have come to greet them. The baggage handlers do their job with relish and an enthusiasm unlike their counterparts in any other part of the world. Arriving delegations are usually quickly identified and whisked away to their hotels, and, after a brief rest, combine with their hosts to go over the itinerary. It is at this point where some hasty changes or new decisions might have to be made due to unavailability of certain individuals, etc.

Each day it is advisable to meet fairly early with your guides to go over the day's events, not only to avoid any confusion but to make amendments if necessary. The assigned guides are used to making last-minute changes to programs, and go to extraordinary lengths to accommodate one, but it is best to keep changes to a minimum. Be especially careful to avoid re-routing as the Chinese transportation authorities are not geared to accepting last-minute changes and aircraft and trains are usually booked up several days in advance.

Accommodation

Beijing (Peking) has few hotels for a capital of its size and importance. It is usual for high-level delegations to be put up at the Peking Hotel.

Only two years ago, the lobby of the Peking Hotel appeared to one as a vaguely hostile cavern, decorated by Maoist iconography bearing little resemblance to a working hotel. Grudging service could only be prodded from the staff after indisputable evidence of one's bona fide business. There was also the feeling that one was participating in the world's first self-service hotel. Be prepared still to handle your own baggage up to your room in

this and other hotels. The Beijing Hotel lobby has now been transformed with all the trappings of international hotels elsewhere. It throbs with foreign businessmen, who seem to be positively enjoying themselves. The rooms are large by international standards and are still furnished in the old style with beautifully worked Peking carpets and embroidered bedcovers.

Other hotels are part of another dimension. The Friendship Hotel, a large rambling barracks on the outskirts of Peking, was used to house the Soviet experts and their families before the Sino-Soviet split in the early sixties. It is a warren of corridors and underground walkways. Visitors can get lost on the way to the dining room or the antique bathrooms.

Since dining rooms are housed in separate blocks and linked by the covered walks, a wrong turn and you sit down at what you think is your table, but in an entirely different but identical dining room. Since tables are usually assigned on a group basis, expect to be served only at <u>your</u> table.

Rooms at the Friendship Hotel are furnished in oppressive pre-war furniture solid enough to take the most obese Russian expert. There are other inhabitants too - out of season, luckily.

The point about all this superficial comment is that hotel standards in China vary, and China is changing very rapidly. The unexpected is the norm. Until some of the larger hotels that are being put up in cooperation with the U.S. chains are completed in the 1980s, existing accommodations can appear a little eccentric to visitors.

Hotels provide a Western breakfast. Chinese breakfasts consist of rice gruel (congee), tea and sweet cakes. The Western breakfast, usually consisting of toast and eggs, is fairly good but otherwise it is best to avoid Western-type food and opt for Chinese cooking for lunch and dinner.

Laundry

Dry cleaning is not recommended. In the hotels, unless otherwise instructed, all laundry is washed with soap in very hot water. Anyone with synthetics is well advised to specify to room service that lukewarm or cold water should be used.

Hospitality

There is no tipping in China, but an old Chinese saying 'Returning a peach for a plum' indicates that it is not inappropriate to offer your guides, hosts, or others who have been helpful, something in return for their efforts on your behalf. Guides are not adverse to taking small gifts in this way.

Do not be offended, however, if Chinese colleagues or your guides refuse to eat with you. There are good reasons for not doing so; the Chinese are very warm and thoughtful people and they genuinely will not wish to burden you with their presence when you may have been with them all day. It is polite to refuse. There is also the question of expense. Foreigners are charged excessive prices for meals by local standards and the Chinese will not wish to put you to any extra expense on their behalf. Grain is rationed in China and even though you will pay the bill, Chinese guests at hotels and restaurants often are faced by having to discreetly surrender valuable ration coupons to the management. Finally, guides work long, tedious hours serving group after group and spend extended periods away from their families. An early evening can be a bonus to them.

A book or souvenirs of Canada (ashtrays with maple leaf motif or paperweights) are popular. Little red maple leafs for buttonholes are gratefully received at all levels of society.

Because the Chinese like to offer banquets as a traditional form of welcome it is usually a good gesture to return the courtesy before departure. A banquet for twenty people might cost as much as Cdn.$500 depending on the number of courses and amount of liquor. Ten to twelve courses are what you can expect; because politeness requires that the guest samples every dish, it is wise to 'pace' oneself since it is customary to replenish empty dishes. The same holds true of liquor. There is usually a variety: sweet Chinese wine, beer and the mandatory Mao tai - a clear, fiery drink made from sorghum(Gaoliang) - it is one of the strongest liquors in the world - 65 - 70 percent alcohol. Chinese soft drinks are not to be recommended. Tea is available everywhere and on every occasion and should be preferred.

The host will usually present a toast. Often this will mean emptying glasses several times. The effects of the Mao tai are not always immediately apparent.

The quality of Chinese food offered to visitors in hotels is not of the high standard one is now accustomed to expect of the Chinese - though the quality in the Beijing Hotel is not bad. This is because, with so many visitors now arriving in China, establishments which cater for them have tended to develop a rather bland menu which will be acceptable to most palates yet give a dash of the exotic. It is always nice to branch out independently on the odd occasion and there are a few worthwhile places. Your hosts or guides can usually advise and make arrangements, given adequate notice, but the following may be useful to have on hand in case there is a convenient slot in the timetable. They will also be useful for return banquets.

Bei Hai Park

In the latter half of the nineteenth century when the Qing dynasty was on the verge of collapse, the Empress Dowager Cixi, the real power in China at that time, used to banquet on her favourite dishes in a park behind the walls of the Forbidden City. After the overthrow of the Qing in 1911, the Empress Dowager's cooks established a public restaurant on the spot, an old vermillion painted pavilion. Its name, Fang Shan, means 'imitating the Imperial Kitchen' and it is one of the few first-class restaurants in Beijing which caters to foreign visitors and the diplomatic circuit. At lunch it is fairly easy to get a table, but dinner requires a booking, often a day or so ahead. The restaurant will charge you by the number in your party, not by dish, and the manager will pick out a menu after you tell him what your 'standard' is. About Yuan 20 (approximately $2.00) a head will be the minimum charge to expect, drinks excluded. Beer is the standard drink, apart from tea.

Most visitors associate Beijing cuisine with Peking Duck. There are three well-known places: the 'Big' Duck, so-called because it is located in a new, multi-storey complex at 24 Qianmen (Tel: 75-1379), near the old Catholic cathedral, the 'Small' Duck at 2 Chongwenwai (Tel: 75-0505) and the 'Sick' Duck, nicknamed because of its proximity to the Capital Hospital, 13 Shuai Fu Yuan (Tel: 55-3310). This is also reputed to be the best of the three.

The Sichuan Restaurant, which serves a spicy fare typical of the Southwestern province, is hidden away in an old courtyard, behind a stone gate with red painted doors and a grove of pine trees - 51 Rong Xian Hutong (Tel: 33-6356). Among the recommended dishes are the braised eggplant in fish sauce, camphor-smoked duck and crispy rice.

Summer Palace Restaurant. A pavilion within the grounds of the Summer Palace called 'Listening to the Orioles' specializes in fish from the Kunming Lakes, velvet chicken and fried dumplings (Tel: 28-1276).

Go early. Chinese restaurants cater to the masses leaving work at 5.00 p.m. and, consequently, are usually closed by 8.00 p.m.

In Shanghai two good places to eat are the Sichuan Restaurant (Tel: 22-1965) and the Yangzhou (Tel: 22-2779), both on Nanjing Road East. Shanghai also has a French restaurant.

Liquor

China produces its own wines but these are taken slightly warm at meals. The Shaoxing has a sherry-like taste and is usually ordered at banquets. Grape wine is called 'sour' wine by the Chinese, and is not popular. Imported spirits, such as brandy and whiskey, are very expensive. It is advisable to bring in duty-free whiskey or brandy. The Chinese are fond of brandy and it is a good ploy to have some available to put on the table for the return banquet. Chinese beer is very good and available everywhere. It is usually drunk at meals in preference to soft drinks, which are not well manufactured in China. Since flasks of hot water are available everywhere, including the aircraft, it is worth taking a jar of instant coffee.

In and around Beijing

The spacious layout of the capital was created by Kublai Khan. The Forbidden City should be visited, as should Bei Hai Park and the Summer Palace, but otherwise the general mass of buildings that make up modern Beijing are a drab disappointment.

Early morning walks are worthwhile, however, as it is possible to see quite a few sights and people, unhurried by the daily rush and dust. Liu Li Chang Street, off Chien Menwai, is good for a stroll because of the antique shops.

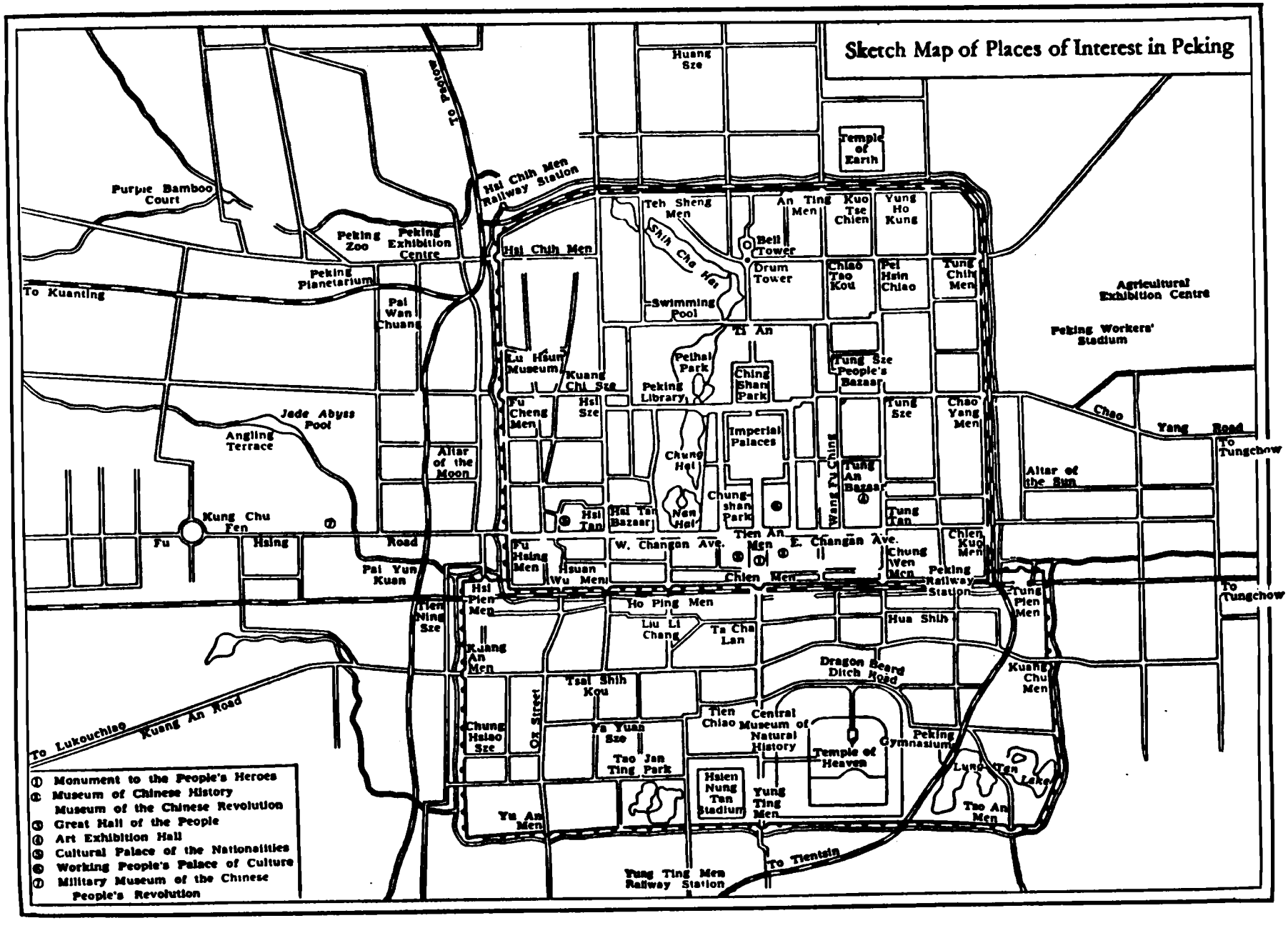
Be prepared to draw curious crowds - this is particularly so in Shanghai - but the people are never hostile and if one carries a Polaroid Land Camera and is prepared to take a few instant photographs, an air of conviviality soon breaks out.

In front of the Imperial Palaces and adjoining the Peking Hotel is Tien An Mien 'The Heavenly Peace' Square, said to be able to hold over one million people. On either side lie the Great Hall of the People (National People's Congress) and the Museum of Chinese History. In the Square is also Mao's mausoleum, hastily completed after his death, but now there is a questionmark over its future.

Beihai Park (literally 'northern sea') is very popular with the local population and is a good place to stroll and get to know some of them. Compared to a few years earlier, people are now less self-conscious and more approachable. Beihai is really a series of connecting lakes (the energetic can hire rowing boats) with a bridge spanning them. The Park has several pavilions and pagodas. The Temple of 10 000 Buddhas (Wanfulou) was built during the Chienlung period (1736 - 1795 AD) of the Qing dynasty.

Late September to early October is a good time to visit the Western Hills when the maples change colour. There are several temples in the surrounding hills, which afford spectacular views.

The Great Wall is, of course, a major attraction, but is some three hours by train from the capital. Visitors are taken on a reconstructed section but views of the original wall, now in ruins, from the train window give a good idea of its original utility. The Chinese name for the Great Wall is Wanli changcheng - the '10 000 li (mile) construction'. The original wall, begun some 2 500 years ago, when completed stretched about 4 000 miles, providing a barrier against the Mongol tribesmen.


Sketch Map of Places of Interest in Peking
To Paotow
Huang Sze
Temple of Earth
Hsi Chih Men Railway Station
Purple Bamboo Court
Peking Zoo
Peking Exhibition Centre
Teh Sheng Men
An Ting Men
Kuo Tse Chien
Yung Ho Kung
Bell Tower
Shih Cha Hai
Drum Tower
Chiao Tao Kou
Pei Hsin Chiao
Tung Chih Men
Hsi Chih Men
Peking Planetarium
To Kuanting
Pai Wan Chuang
Swimming Pool
Ti An
Agricultural Exhibition Centre
Peking Workers' Stadium
Lu Hsun Museum
Kuang Chi Sze
Peihai Park
Peking Library
Ching Shan Park
Tung Sze People's Bazaar
Tung Sze
Chao Yang Men
Chao Yang Road
To Tungchow
Jade Abyss Pool
Angling Terrace
Fu Cheng Men
Hsi Sze
Imperial Palaces
Altar of the Moon
Chung Hai
Wang Fu Ching
Tung An Bazaar
Altar of the Sun
Kung Chu Fen
Hsi Tan
Hsi Tan Bazaar
Nan Hai
Chung-shan Park
Tung Tan
Fu Hsing Road
Pu Hsing Men
W. Changan Ave.
Tien An Men
E. Changan Ave.
Chien Kuo Men
Chung Wen Men
Peking Railway Station
Pai Yun Kuan
Hsuan Wu Men
Chien Men
Hsi Pien Men
Ho Ping Men
Tung Pien Men
To Tungchow
Tien Ning Sze
Liu Li Chang
Ta Cha Lan
Hua Shih
Kuang An Men
Dragon Beard Ditch Road
Kuang Chu Men
Tsai Shih Kou
Ox Street
To Lukouchiao
Kuang An Road
Chung Hsiao Sze
Tien Chiao
Central Museum of Natural History
Ta Yuan Sze
Peking Gymnasium
Temple of Heaven
Tao Jan Ting Park
Hsien Nung Tan Stadium
Yung Ting Men
Lung Tan Lake
Yu An Men
Tao An Men
To Tientsin
Yung Ting Men Railway Station
① Monument to the People's Heroes
② Museum of Chinese History
Museum of the Chinese Revolution
③ Great Hall of the People
④ Art Exhibition Hall
⑤ Cultural Palace of the Nationalities
⑥ Working People's Palace of Culture
⑦ Military Museum of the Chinese People's Revolution

Shanghai

The first impression of Shanghai is its 'Western' aspect. It was a foreign concession and was built almost entirely by the British who, together with other nations, shared the city as a 'concession' under the 'unequal treaties' foisted upon China as a result of the Opium Wars. With a population of approximately 10 million it is China's largest city, industrial centre and major port. The waterfront, with its famous promenade, the 'Bund', is lined with foreign architecture of circa 1920. The Peace Hotel on the Bund is probably China's best hotel. It was formerly the 'Cathay' which, in its day, along with the Oriental in Bangkok and the Peninsula in Hong Kong, were the best in East Asia. Nanking Road is a long, busy street full of shops. It is also a street full of historical incidents. The People's Park off the Nanking Road is the one which, before the war, reputedly had the sign outside forbidding entry to 'dogs and Chinamen'. Shanghai has many cinemas and theatres, which always draw long lines.

Shopping

When it comes to window gazing China is not the best place, as one soon discovers. Beijing, especially, seems to have few streets devoted to consumer needs, other than the more basic shops. The Number One Department Store, around the corner from the Beijing Hotel on Wang fu Ching, is worth a stroll if one has time. The same street has bookstores, which give one a feel of the literature China is reading. A massive number of titles are published on science and technology topics each year and these bookstores always draw large crowds.

Antiques are of interest, but forget the idea of picking up something of value cheap. After the Revolution many treasures were taken to Taiwan or sold to merchants in Hong Kong, and museums have picked up the most valuable items. The remaining artifacts the Chinese Government are now willing to sell fetch astronomical prices and dealers in Hong Kong can usually provide objects at more modest prices. Any notions of haggling for a Song landscape or Ming vase can be dashed. To give an example, in 1979 a badly preserved Song monocrome landscape was being offered in an antique shop along Liuli Chang Alley for U.S.$20 000 and a relatively modern eighteenth century blue and white vase emblazoned with dragons was tagged at U.S.$133 000.

The Friendship Stores, reserved for visitors and diplomats, provide the only source of reasonably priced articles. Chinese silks and brocades are good buys, as are fur hats for men and women. Locally manufactured down-filled ski jackets are good value at about Cdn.$25. Some articles which are very expensive elsewhere are often excellent value in China, e.g. a set of draughting instruments can be had for only Cdn.$2.00 - 5.00.

Shanghai is the best place for shopping, walking and generally just getting around. Nanjing Road is probably the most famous thoroughfare in China, being the scene of many incidents of recent history. It has a number of large department stores. Shanghai Number One, formerly the Wing On Company (now in Hong Kong), on Nanjing Road is the largest and is well worth a visit.

Dress

The Chinese tend to be informal and during the warmer months tend to attend meetings, etc. in white, open-necked short sleeved shirts. The dark suit and tie demanded by the Japanese is not necessary, except for very formal occasions. Shorts and open sandals do tend to be frowned on, as do sleeveless blouses and off-the-shoulder dresses.

Customs

Chinese tend to be extremely courteous to visitors. Sometimes this approaches deference, with whole swathes of shoppers parting to let a visitor through to the counter or even offering places to sit in a crowded room.

Punctuality is highly regarded.

Hotel staffs do not expect tips but do expect expressions of thanks.

Many Chinese do not like to be photographed without giving their permission, especially older persons, though anyone taking a Polaroid camera will be engulfed with people seeking 'demonstrations'. Colour film is not available in China so photography enthusiasts should take plenty in with them.

Forms of Address

Chinese names usually consist of three characters, though a few people only have two, e.g. Fang Yi, Minister of Science and Technology. The surname comes first, the diminutive name second, thus Mao Zedong. It was common practice until the introduction of pinyin to hyphenize the two diminutives i.e. Mao Tse-tung. Like other languages chinese tends to have a lot of common surnames: Wang, Li, etc. This is because there were, it is said, in ancient China originally a "hundred common surnames" -"Lao Baixing" - this term is now commonly used to refer to the masses in general. Unless one is meeting with hard core party officials the term"comrade" is rarely used. Forms of address like "Prof. Li", "Mr. Wang" are used. Friends and colleagues address each other as "old" ("lao") so and so, i.e. Lao Wang.

In any reference to China one should avoid terms like 'Red' China, 'Communist' China or 'Mainland' China. It is best to simply say 'China' or the more formal 'People's Republic of China'.

Health

If one is not feeling too well at any stage of the journey, unless it is serious it is probably just as well not to mention it, since the Chinese hosts will go to extraordinary lengths to rectify the problem. It is not uncommon to find oneself hospitalized for even minor complaints. On the other hand, should one fall ill, excellent care is the rule.

Drinking water should be requested. Tap water is not safe, particularly in rural areas and in Shanghai, where it is drawn from the Whampoa River and is a tacky brown colour.

Currency

China's currency is called the Renminbi (RMB) - 'people's cash'; the unit is the Yuan (dollar), divided into 100 Fen (cents). Ten fen is known as Jiao. There are notes of ten, five and two yuan and one jiao. Coins come in five, two and one fen dominations. All currency has to be declared on entry but there is no limit to the amount taken in; any left over will be changed on exit, provided it agrees with the statement made on the entry form, so keep the original. (One yuan = Cdn.$0.8230).

Hours of Business

Government offices open from 8.00 a.m. until noon and 2.00 p.m. to 5.00 p.m., though some operate 7.00 a.m. to 6.00 p.m. Monday to Saturday. Sunday is a holiday in China. Appointments usually begin at 8.30 a.m. or 9.00 a.m. but it is not usual to request appointments after noon on Saturday.

Shops stay open to about 7.00 p.m., including Sundays.

Transportation

Be sure all your flights are firmed up because it is difficult to get CAAC to respond to enquiries. Onward confirmations are very important because it is almost impossible to reconfirm return flights within China. Chinese aircraft do not have smoking and non-smoking sections, and tend to be lax on safety measures. The degree of safety tends to deteriorate by degree of penetration into the interior, where local flights have no seat belts and the seats, designed to fall forward to accommodate baggage, throw one forward on landing. Chinese aircraft operate without navigation lights, as does most ground transportation. Lights are only switched on to signal other drivers and pedestrians. Pedestrians do not have right of way.

Be prepared for unexpected changes in the itinerary because of last-minute changes in airline schedules.

The flight from Beijing to Shanghai takes 1½ hours. By far the best means of transport is the train (14 hours). It is comfortable and a great deal of China can be seen during the journey.

GENERAL BACKGROUND READING

Chinese Institutions Involved in Energy Policy and Research

The following is a list of institutions involved in the making of energy policy as well as those carrying on research in all aspects of the exploitation of fossil fuels, nuclear energy, hydroelectricity, and new energy sources. Wherever possible, we have provided the names of important individuals at these institutions.

State Council Ministries, Commissions and Special Agencies

Ministry of Coal Industry	Minister	Xiao Han
Academy of Coal Mining Science	President	Fan Weitang
Ministry of Petroleum Industry	Minister	Song Zhenming
Ministry of Power Industry	Minister	Liu Lanbo
Nuclear Power Bureau	Dep. Director	Deng Zhikui
Academy of Electric Power Sciences		
First Ministry of Machine Building	Minister	Zhou Zijian
Mining Machinery Bureau		
Second Ministry of Machine Building	Minister	Liu Wei
Nuclear Power Bureau		
Ministry of Geology	Minister	Sun Daguang
State Scientific and Technical Commission		
Second Bureau (Energy Research)	Dep. Director	Lin Hanxiong
Fifth Bureau (Nuclear Research)	Director	Wei Zhaolin

National Level Offices

National Mining Committee	Chairman	Xu Zailian
National Geodesy and Geophysics Committee	Chairman	Gu Gongxu

Professional Societies

China Electrical Engineering Society	President	Li Daigeng
China Coal Mining Society	President	He Bingzhang
China Geology Society	Acting President	Xu Jie
China Geophysics Society	President	Gu Gongxu
China Nuclear Energy Society	President	Wang Ganchang
China Nuclear Science and Technology Society	President	Zhang Jiahua
China Petroleum Society	President	Hou Xianglin
Petrogeology Group		
Petroengineering Group		
Oil Refining Group		
China Mineralogical, Petrological and Geothermal Society		
China Water Conservancy Society	President	Zhang Hanying

Research Institutes

INSTITUTE	DIRECTOR	AFFILIATION
Coal Chemistry Institute of Shanxi, Taiyuan	Peng Shaoyi (Deputy)	CAS
Coal Chemistry Institute, Beijing	Wang Yinren	MCI, CACMS
Coal Institute, Beijing	He Bingzhang	MCI/CACMS
Coal Institute, Fushun		MCI/CACMS
Coal Mining Research Institute, Kailuan		MCI/CACMS
Coal Mine Design Institute, Beijing		
Coal Mining Institute, Tangshan		
Coal Mining Machinery Institute, Shanghai		
Mining Machinery Research Institute, Luoyang		
Physical Prospecting Instruments Research Institute, Changchun		
Carbon Chemistry Institute, Shanghai	Peng Shaoyi	CAS
Geochemistry Institute, Guiyang	Tu Guangzhi (Deputy)	CAS
Geology Institute, Beijing	Zhang Wenyou	CAS
Geophysics Institute, Beijing	Fu Chengyi	CAS
Geology Institute, Lanzhou	Huang Ruchang	CAS/Lanzhou Branch
Geology and Geography Institute, Urumchi		CAS/Xinjiang Branch
Geological Exploration and Development Research Institute, Chengdu		SPB
Geology and Paleontology Institute, Nanjing	Zhao Jinke	
Survey and Geophysics Institute, Wuhan	Fang Jiu	CAS
Petroleum Engineering Institute, Fushun		M Petro I
Petrochemical Institute, Beijing		M Petro I
Petroleum Institute, Chengdu		SPB
Ocean Petroleum Institute		
Petroleum Geology Institute of Gansu		
North China Petroleum Survey and Design, Institute of Hebei	Lin Zulu (Deputy)	
Petrochemical Industrial Design Institute, Beijing	Deputy, Yang Guangqi	
Petrochemical Industry Institute, Jinan		
Petrochemical Institute of Heilongjiang		
Petroleum Exploration and Exploitation Institute, Beijing	Shen Lisheng	
Petroleum Refinery Institute, Lanzhou		
Daching Underwell Oil Extraction Technology Research Institute, Anda		
Daching Scientific Research and Design Institute, Anda	Yang Yuzhi (Deputy)	
High Energy Physics Institute, Beijing	Zhang Wenyu	CAS
Atomic Energy Institute, Beijing	Wang Ganchang	CAS/2nd MMB

INSTITUTE	DIRECTOR	AFFILIATION
Nuclear Physics Institute, Shanghai		CAS
Atomic Energy Utilization in Agriculture Institute, Beijing		CAAS
Southwest Institute of Physics, Leshan (Sichuan)	Li Zhengwu	2nd MMB
Uranium Ore Dressing and Metallurgy Institute, Beijing		2nd MMB
Reactor Engineering Research and Design Institute, Beijing		
Modern Institute of Physics, Lanzhou	Yang Chengzhong	
Hydraulic Power Design Institute, Beijing		M Power I
Electric Power Planning and Designing Institute		M Power I
Hydraulic and Electric Engineering Institute, Wuhan		
Hydroelectric Survey and Design Institute of Shaanxi		
Yangtze River Hydraulic and Hydroelectric Engineering Research Institute		
Yangtze River Water Conservancy and Hydropower Institute		
Thermal Energy Institute, Changchun		
Guangzhou Institute of Energy Sources	Biomass Div. Head Chen Rusen	CAS
Beijing Institute of New Technology Application	Deputy, Gong Bao Solar Energy	
Institute of Electric Engineering	Deputy, Yang Changqi MHD	CAS
Guangdong Provincial Institute of Geothermal Energy Research, Guangzhou		
Nanjing Institute of Technology		

KEY

CAAS – Chinese Academy of Agricultural Sciences
CACMS – Chinese Academy of Coal Mining Science
CAS – Chinese Academy of Science
MCI – Ministry of Coal Industry
MMB – Ministry of Machine Building
M Petro I – Ministry of Petroleum Industry
M Power I – Ministry of Power Industry
SPB – Sichuan Petroleum Bureau

Educational Institutions

SPECIALIZED INSTITUTIONS (designated "Key" Institutions)	AFFILIATION
Daching Petroleum College, Anda	Ministry of Petroleum Industry
Southwest Petroleum College, Chengdu	Ministry of Petroleum Industry
Harbin Petroleum Engineering College	Ministry of Petroleum Industry
East China Petroleum College, Jinan	Ministry of Petroleum Industry
Beijing Chemical Engineering College	Ministry of Petroelum Industry
Jilin Geology College, Changchun	State Bureau of Geology
Sichuan Mining College, Chengdu	Ministry of Coal Industry
Coal Mining College, Fuxin (Liaoning)	Ministry of Coal Industry
Wuhan Geological College	State Bureau of Geology
Chemical Engineering College, Beijing	Ministry of Chemical Industry
East China Water Conservancy College	Ministry of Water Conservancy
Shanghai Chemical Engineering College	Ministry of Chemical Industry
Hebei Electric Power College, Shijiazhuang	Ministry of Electric Power
Wuhan Water Conservancy and Electric Power College	Ministries of Water Conservancy and of Electric Power

China's Scientific and Technical Association Holds Second Congress

HOWARD S. KLEIN

The Scientific and Technical Association (STAPRC), counterpart organization of the CSCPRC, held its Second National Congress from March 15 to 23, 1980, when a new, expanded role was outlined for the Association in the organization of scientific research and personnel. The 1,500 delegates from 29 regional associations and 95 affiliated societies attending the meeting adopted a new constitution for the Association that calls on its members, scientists, and technicians to "play an advisory role to government departments" on scientific, technological, and other construction projects of China's modernization program. More important, the conferees approved a work report by Zhou Peiyuan, who was elected chairman of the STA, that portrays the Association as the channel to cut across administrative and bureaucratic lines and the forum for airing academic debates.

The nine-day meeting consisted largely of group discussions organized by localities or specializations and was devoted to considering Zhou's work report and specific questions relative to delegates' specialties. About half the delegates were above the level of associate research professor or senior engineer. Some of the group discussions produced proposals for future activities that included:

- A four-point proposal on strengthening the study of biology in schools.
- The proposed establishment of a Ministry of Energy with overall responsibility for China's energy resources.
- A three-point proposal for strengthening geoscience education presented by more than ten interested societies.

In addition to the group discussions the delegates also heard important speeches by several prominent scientists and administrators on some key issues currently under review. For example, Qian Xuesen, Director of the Mechanics Institute and a newly-elected Vice Chairman of the STA, urged "breaking" administrative boundaries between research organizations, schools, and enterprises, while mathematician Hua Luogeng, a Vice President of the Chinese Academy of Sciences, called for more academic activities, noting that "free discussions and often arguments lead to new ideas." The most important reports, however, were those delivered at the opening and closing of the Congress by Zhou Peiyuan and Hu Yaobang, General Secretary of the Chinese Communist Party and a member of the Standing Committee of its Politburo.

Zhou's work report, entitled "Make Concerted All-Out Efforts, Strive to Modernize China's Science and Technology," was a candid, comprehensive, and politically-oriented three-part review of the history of the STA, the lessons to be learned, and the future policies and tasks of the Association. While Zhou's speech noted the "pioneering spirit" of China's scientists and technicians and cited their contributions to China's development, it also documented the political troubles they have suffered since 1957 and offered suggestions for the organization on how to carry out its mandate while avoiding future difficulties.

"Special Features" of the STA

According to Zhou Peiyuan, the central point in understanding the STA is that as a mass organization of scientists and technicians, the STA has "special features" that are necessary for the effective conduct of its work. These "features" include freedom to debate issues of science and technology without worry of administrative disciplinary measures. In the past Party cadres have regarded such activities and the scientists themselves with suspicion and mistrust, and Zhou admitted the Association had committed some "leftist mistakes" in the late 1950s. He also noted, however, that

> The phenomena of looking down on knowledge and discriminating against intellectuals still exist to a fairly large extent and the role of scientists and technicians has not yet been brought into full play.

Zhou told the STA and its affiliated organizations that because they comprise mass organization of scientific and technical workers, they must organize their work and administration to suit the conditions of the scientists themselves. Contrary to criticisms that this is "special treatment," Zhou said that it is a "precise embodiment" of the Party's work in the Association. Fur-

thermore, he warned the conferees, "if we do not maintain a distinct stand . . . then the Association will lose its special features and its representatives."

The other "special feature" of the STA is its potential as a source of contacts for scientific and technological workers with similar specializations working in different departments and organizations. The STA's organizational structure cuts across administrative lines, enabling it to actively carry out "exchanges, studies and discussions" among scientists of normally separated work units. While developing the Association's academic activities, Zhou told the conferees they should pay attention to the "inter-connections among various branches of learning and specialties" and "strengthen coordination . . . among various academic societies and specialty organizations."

This mandate is not a new one for the STA, which has, since its creation in 1958, been responsible for domestic academic exchanges. Moreover, Zhou addressed this issue of coordination at the 1978 National Science Conference, saying it was "imperative . . . to conduct all kinds of scholarly exchange activities." What is significant is the identification of this feature of the Association as something "special" and is apparently intended to relieve STA activities of some of the usual bureaucratic restrictions.

In the same way the freedom to hold academic debates and discussions without administrative review is not a new characteristic of the Association's work. In March 1978 Zhou noted that the STA was a "good organizational forum for us to promote contention among different schools of thought . . . and further activate a scholarly atmosphere." His recent reminder to pay attention to these "special features," however, indicates how central this factor is to the STA's activities. Another indicator was an interview, appearing in *People's Daily* on the eve of the Congress, with Yu Guangyuan, Vice Minister of the Scientific and Technological Commission and Vice President of the Chinese Academy of Social Sciences, which highlighted the differences between the STA and the Academy of Sciences or the Scientific and Technological Commission, including the two "special features."

Future Policies and Tasks

In addition to developing academic activities, another task of the STA outlined by Zhou is to popularize science and technology, with a specific reference to production and the four modernizations and a special emphasis on the rural areas. In this work STA units and affiliated organizations should coordinate their activities with other mass organizations including the women's federation, youth league, and trade unions. Together, these organizations will promote the importance of science through new books and journals, science fairs, audio-visual aids, and other mechanisms already in use.

The STA at all levels has also been instructed to "find and train talented personnel," breaking with the seniority system to train and recommend promising young scientists. In addition, scientific and technological workers were encouraged to continue their own vocational studies, and Zhou instructed localities that were able to "set up schools for the study of science and technology" or sponsor training courses and lectures to enable scientific and technological workers to take advanced studies. Similarly, Zhou told the STA that at all levels they should organize "youth and junior scientific and technological activities" to create additional channels to locate new personnel.

Advisory Role of Professional Societies

Zhou also instructed the conference that the STA "should actively recommend" that scientific and technological workers participate in discussing state construction and science and technology plans and policies. As a "good staff member and adviser" for the party and government, the STA's subordinate organs, according to Zhou, should help study and draft various technological norms and standards, evaluate and determine scientific and technological achievements, and assist educational departments reform scientific and technological education at colleges and secondary schools. Moreover, Zhou insisted, "we should strive to make proposals by scientific and technological workers succeed."

The same point about policy was made by Yu Guangyuan in his *People's Daily* interview. Yu said the STA has a "consultant role" in scientific and technological matters and has already provided "invaluable advice" on several projects since it began this work in 1978. Yu continued that government departments should not neglect the advice of scientists and technicians, whom he advised to persist if they believed their "suggestions were scientifically sound." He warned, however, that the societies should "not lose their independence" even though they were "often supported and subsidized by the government. Administrative departments," Yu said, "should not intervene in their activities."

Another task identified by Zhou Peiyuan resulted in his urging the conferees to "vigorously develop international academic exchanges," and he outlined several formats for these activities. These include "sending out" specialists to attend foreign and international academic meetings or to conduct specialized focus "observation tours"; convening international meetings in China; attracting scientific and technological workers from abroad to work in China; and inviting "well-trained specialists from abroad" to give lectures to China's academic societies. Zhou noted over 20 Chinese academic societies had joined their international counterpart organizations.

Concluding his talk, Zhou noted that none of the tasks of the STA are likely to be achieved unless the Association is strengthened organizationally by helping the scientific and technological workers 'become masters of their own affairs." To that end, he called for democratic elections within professional societies, conferring official titles and authority on specialists, improving their livelihood, and for specialists to "boldly step forward to . . . struggle against any act that . . . encroaches on their rights and interests." He added

> We . . . must try our best to protect this lively political situation . . . as if it were our own eyes. . . . Time means victory. We must race against the minutes and seconds, make up for losses in time and allow no relaxation of efforts.

Hu Yaobang's Speech

The address by Communist Party General Secretary Hu Yaobang was a forthright effort to assure the assembled science leaders that the leadership of the Party understood their past troubles, recognized their intrinsic role in the four modernizations, and was now prepared to deal with certain science and research questions requiring "immediate attention." Hu, delivering his first public statement since being named General Secretary in late February, told the delegates that China's problems must be solved "one by one, step by step," and "cannot be changed overnight." He explained that "first we have to solve those problems which are among the most important," while other important problems, such as those in science and education, must continue for a while. Hu noted, however, referring to problems in "scientific research and education undertakings," that China "must waste no time in solving these problems in a practical way."

The main hindrance to the popularization and development of science in China is the contingent of 18 million cadres that, Hu Yaobang said, had "many unqualified or not well qualified" members. Since these officials lack "professional knowledge and competency," they do not always understand or follow the Party's directives, Hu noted. To remedy the situation and build a contingent of cadres with specialized training and an understanding of the scientific process who are also loyal to the Party, Hu said, is a "main focus" of the Party's organizational work.

Echoing other officials' remarks in recent months, Mr. Hu urged that scientists be utilized more thoroughly in China's development process and encouraged ongoing efforts to search out talented personnel and

> systematically promote scientists and technicians who have specialties . . . to the leading positions in the party and the government to lead economic, scientific and educational undertakings.

Mr. Hu also called on all cadres to "study scientific, technical and management affairs related to their own fields" and announced that the Secretariat of the Party Central Committee was prepared to invite certain scientists to "hold discussion meetings and seminars and to ask you to be our teachers." Hu said, "In the field of science, I myself am not qualified. . . . Today . . . I hereby enroll myself with the scientists now present."

Education and the development of a "reserve force" from among young people is another key to developing the nation's science and technology, according to Hu. In this regard he identified two "major problems" for serious thought. First is the problem of approximately 160 million young people, who were deprived of 10 years of formal education between 1966 and 1976, when they were between 8 and 18, and who now cannot be rapidly trained because many have families and "they have to carry out heavy productive labor everyday." Hu called on the STA representatives to give this problem their attention and "figure out the most effective, most convenient and most practical ways" to help this group of people, now between 20 and 30 years of age, become "truly a new generation suitable to the needs of the four modernizations."

The second problem noted by Hu is the state of China's primary and middle schools and the importance of planning and curricula preparation now in order to assure future success for the 210 million youth currently enrolled. While the education system has improved, Hu said, "it still falls short of our expectations . . . our middle and primary schools cannot keep pace with the developing situation."

The main culprit for this situation is apparently China's lack of funds to improve its schools. According to Hu Yaobang, more efforts should be directed at education, but "we cannot expect to increase educational funds overnight." Nevertheless, Hu said, "we need and can seek marked improvement on many issues of education" and promised to "hold a special discussion" on ways to improve China's educational system. For now, a central measure for improving the schools involves all members of society showing more respect for teachers and better care for the students. In addition to encouraging them, students should also be provided with "more and better study materials, textbooks and all kinds of suitable reading material."

A third measure, central to China's scientific and technological development, according to Hu Yaobang, is the Party's full support of the work and talents of the nation's scientists and scientific workers. Hu said the Party is relying on the existing contingent to lead the development of science, on the one hand, and train talented successors, on the other. Praising China's scientific contingent, Hu Yaobang said

> Scientists are what they are simply because they possess a strict scientific spirit . . . of innovation

> and . . . of creating a style of their own. . . . Scientists can keep on advancing simply because they are never satisfied with their own achievements. . . . Our party hopes that the scientific circles . . . will painstakingly cultivate and disseminate this good work style . . .

The Second Congress of the STAPRC adjourned shortly after Hu Yaobang's speech but not before the delegates adopted a constitution for the Association, passed a resolution endorsing Zhou Peiyuan's report, and adopted an "appeal" directed to China's scientists and technicians. The appeal calls on these personnel to do a good job as advisers and "take the initiative to be concerned with the formulation of national construction plans and the planning for the development of science and technology."

The convening of the Second Congress of the STA and the expanded role subsequently outlined for it and its affiliated associations and societies by Zhou Peiyuan and Hu Yaobang mark the latest steps in the reconstruction of China's science infrastructure begun in the early 1970s and accelerated after September 1977. Moreover, the Congress represents the latest effort by the political leadership to mobilize the support of the scientific community for solving the lingering problems of modernization and development. As Hu Yaobang told the conference, "without advanced science and technology, there would be no four modernizations," and it follows that without the support of the scientists the leadership's plans are doomed. The confluence of these interests at the Second STA Congress suggests the requisite levels of support exist both among members of the scientific community and within the Party leadership and each group is prepared to give the other room to be creative and flexible in implementing principles and policies governing scientific research and educational work.

NATIONAL SCIENCE CONFERENCE

Thirteen days after the delegates to the Fifth National People's Congress (NPC) had left Peking's Great Hall of the People, representatives of China's scientific community filed into the hall to discuss the state of China's science, the basic element needed to achieve the national plan for rapid economic and industrial modernization that the NPC had just ratified. The magnitude of the science conference, attended by some 6,000 delegates, surpassed that of the NPC and its 3,456 delegates. Scientist and technician participants accounted for 63% of the delegates according to official estimates; the rest were administrators. A broad cross-section of scientists, from peasant seed breeders to nuclear physicists and theoretical mathematicians, attended and although no age statistics were given, the general impression was of scientists in their 60s and beyond. The conference's timing seemed to signal to doubters abroad and at home Peking's determination to succeed in its modernization drive by recognizing the critical role played by science and technology.

Although Chairman-Premier Hua Kuo-feng (華國鋒) opened the meeting on March 18, keynoting the event was left to Vice Premier Teng Hsiao-p'ing (鄧小平), the leading force behind China's economic expansion-modernization program. Teng's first post-Cultural Revolution comeback period, after all, seemed to have focused on drafting a new domestic economic course ("Certain Problems Concerning the Acceleration of Industrial Development" 關於加快發展工業的若干問題 drafted in 1975 and usually referred to as the Twenty Points) and strengthening and restructuring the Chinese Academy of Sciences.

Teng's speech before the National Science Conference gave him an opportunity to outline his pragmatic views on modernization in very blunt terms. He stated that it was time to do away with empty talk, formalism, and ostentation and to concentrate on practical results, efficiency, and speed. During the Cultural Revolution, he said, the work of the Chinese Communist Party had been focused on "the political revolution" but now the emphasis should be on "the work of modernization." He spoke in broad terms of the past problems and future tasks of Chinese science.

In the course of his talk, Teng was especially eloquent on the need for China to be self-reliant without isolating itself from world science. "Backwardness," said Teng, "must be perceived before it can be changed. A person must learn from the advanced before he can catch up and surpass them...Independence does not mean shutting the door on the world, nor does self-reliance mean blind opposition to everything foreign." In addition, Teng called for active development of international academic exchange and expressed thanks to foreign friends who had helped China in science and technology. Teng was thus recognizing — and pressing on his more conservative (especially party) listeners — the importance of ongoing scientific cross-fertilization.

Teng emphasized the need for mastery of science and technology in order to achieve the other three modernizations of agriculture, industry, and national defense. In a striking comment, Teng stated that the more up-to-date China's economy becomes, "the more our people will support the socialist system." Laying the groundwork for China's scientific development, Teng addressed three key requirements: (1) understanding that scientists also are workers; (2) development of a large force of "red and expert" science and technology personnel; and (3) a clear division of responsibilities between the party committees in charge of science and technology units and the units' technical personnel.

His comments served to assure scientists that their work was no less socialist than that of others and to admonish party cadres to let scientists

work unharassed. Sweeping away the radicals' attempt to arouse class antagonism between manual workers and intellectuals, Teng declared that "those who labor, whether by hand or brain, are all working people in a socialist society." He went on: "To devote oneself to our socialist science and contribute to it is an important manifestation of being red, the integration of being red and expert."

After granting scientists their socialist bona fides, Teng set out to free them from extraneous activities — including political meetings — that might deter them from their work. The party's prescription that scientists should spend five-sixths of their time on substantive work (leaving only one-sixth for political meetings) was a ***minimum***, Teng stressed, indicating that some units may have taken the rule too literally. He said that scientists and technicians should not be expected to spend a lot of time studying political books and participating in meetings unrelated to their work.

Teng went on to state the need to limit party committees' involvement in science. Defining the relationship between party committees and technicians, Teng said the party should be responsible for logistics, personnel matters and planning, leaving the technicians free to carry on their scientific activities. The job of the party committee in scientific institutes, Teng pointed out, was to create an environment in which scientific achievements could be made and new scientists trained. The gist of all this would appear to dilute the power wielded by party cadres over scientific activities.

Fang Yi (方毅), a vice premier and politburo member and minister in charge of the State Scientific and Technological Commission, spoke next to the National Science Conference delegates. He defined the kinds of work scientists and technicians would be performing under the draft "Outline National Plan for the Development of Science and Technology, 1978-1985." Setting 1985 as a target date, the objectives of this eight-year plan include: (1) increasing the number of scientific researchers to 800,000; (2) building centers for experiments; (3) focusing efforts on 108 key projects in scientific and technological research; and (4) generally upgrading the level of scientific work in China. Significantly, the plan aims for China to achieve parity by 1985 with *1970s'* world science in several fields. The irony in this effort is that world science will not be standing still. Fang acknowledged this fact: "While we are trying to catch up with and surpass other countries, they are also forging ahead."

The eight-year plan draft pays special attention to eight spheres: agriculture; energy resources; materials (steelmaking, detection of ore and metals deposits, increased rare and other metals production); electronic computers (ultra large-scale integrated circuits); lasers (laser physics, laser spectroscopy); space (satellites, research on skylabs and space probes); high energy physics (a proton accelerator with a capacity of 30,000 to 50,000 million electron volts); and genetic engineering (for pharmaceuticals and high-yield crop varieties).

Hua Kuo-feng's speech came later in the National Science Conference proceedings and the thrust of his remarks convinced many observers that differences in emphasis, if not of more severe dimensions, separate China's two top leaders. Hua's address was directed more to a party that might be smarting after Teng's speech and less to the scientists' work needs. One can speculate on the reason behind the differences in Hua's and Teng's speeches. Party displeasure may have been communicated forcefully enough to send Hua to the podium six days after Teng to mute the impact of the vice premier's remarks. Or perhaps Teng was chosen to admonish party people from cramping the scientists. Following this latter line of thought, the wonder in his performing this task is that Teng's pre-Cultural Revolution

career was concerned with running the party. Yet perhaps for this very reason, Teng, the former party secretary-general, was the best voice to convince party hardliners that the central leadership meant for their grip on science to be loosened. The apparent difference in emphasis may be simply a division of labor between the two leaders. Teng has apparently staked out science, education, and technology as interests he will shepherd toward realizing economic modernization. It may have been incumbent on Hua as party chairman to ensure an ideological framework for the scientific push ahead.

联合国开发计划署驻华代表处
UNITED NATIONS DEVELOPMENT PROGRAMME IN CHINA

10 May 1980

MINI-PROGRAMME 1980-1981

(Borrowed Funds from Third Cycle IPF)

LIST OF PROPOSED PROJECT FUNDING

Project No.	Project Title	UNDP Inputs (1000 US$)	Executing Agency	Government Implementing Agency
AGRICULTURE, FORESTRY, FISHERIES				
CPR/80/003	Strengthening of Agricultural University	800	FAO	Ministry of Agriculture
CPR/80/014	Test & Experiment Section of Tropical Crops Research Instt. of South China	500	FAO	Ministry of Agriculture
CPR/80/015	Fish Catchment Preservation	300	FAO	General Administration of Aquatic Products
CPR/80/016	Research Centre on Compre-hensive Use of Timber	500	FAO	Ministry of Forestry
CPR/80/020	Land Resources Control and Exploitation in North West Hilly Loess Region	200	FAO	Ministry of Agriculture

Project No.	Project Title	UNDP Inputs (1000 US$)	Executing Agency	Government Implementing Agency
CPR/80/021	Techniques of Self-Cleaning for Bran Oil Production	130	FAO	Ministry of Food
CPR/80/022	Techniques of Meat Freezing	110	FAO	Ministry of Commerce
CPR/80/023	Beijing Vegetables Research Centre	250	FAO	Beijing Municipality
CPR/80/056	Semen Freezing and Artificial Insemination Techniques	120	FAO	Ministry of Land Reclamation
CPR/80/069	Study on Intensive Culture of Poplar	100	FAO	Ministry of Forestry
CPR/80/036	Remote Sensing Techniques for Agricultural Purposes	650	FAO	Ministry of Agriculture
CPR/80/057	Olive Oil Extraction	160	FAO	Ministry of Food
2/	Meteorology	700	WMO	State Bureau of Meteorology
CPR/80/050	National Rice Research Institute	50	Govt.	Ministry of Agriculture
FOREIGN TRADE AND FOREIGN INVESTMENT				
CPR/80/002	Export Packaging Research Institute	200	ITC/ UNIDO	Ministry of Foreign Trade
CPR/80/025	Training in Commodity Inspection Technique	150	ITC	Ministry of Foreign Trade (Commodity Inspection Bureau)

2/ Supplementary assistance to be incorporated in CPR/79/005 through a project revision.

Project No.	Project Title	UNDP Inputs (1000 US$)	Executing Agency	Government Implementing Agency
CPR/80/026	Strengthening of the Legal Affairs Department of CCPIT	60	2/	China Council for the Promotion of International Trade
3/	Study Tour on Joint Enterprises	42	ITC	Foreign Investment Commission
CPR/80/028	Higher Institute for International Economics	400	CPE	Foreign Investment Commission
CPR/80/029	International Trade Information & Export Market Research	150	ITC	Ministry of Foreign Trade (International Trade Research Institute)
4/	Strengthening the Institute for Foreign Trade	50	ITC	Ministry of Foreign Trade (Institute of Foreign Trade)
CPR/80/009	Photo Services for Trade	40,	ITC	China Council for the Promotion of International Trade
5/	Study Tour on Export Processing Zones	48	ITC	Foreign Investment Commission
CPR/70/028	Trade and Foreign Investment Service	11	ITC	Foreign Investment Commission
/SCIENCE AND TECHNOLOGY				
CPR/80/011	Chemical Reaction Engineering for Extractive Metallurgy	300	UNIDO	Academy of Sciences (Institute of Chemical Engineering)
CPR/80/013	Transfer of Know-how Through Expatriate Nationals (TOKTEN)	150	OPE/ RR Off.	Ministry of Economic Relations with Foreign Countries

1/ Pending
2/ To be incorporated through a project revision in CPR/79/023
3/ To be incorporated through a project revision in CPR/79/024
4/ To be incorporated through a project revision in CPR/79/026

Project No.	Project Title	UNDP Inputs (1000 US$)	Exe-cuting Agency	Government Implementing Agency
CPR/80/036	Research in High-Priority Scientific Projects	700	UNESCO	State Commission for Science and Technology
CPR/80/037	Centre for Research in Organic Geochemistry	100	UNESCO	Academy of Science
CPR/80/035	Demonstration Centre for Solar Heating and Cooling	350	TCD	State Commission for Science and Technology
CPR/80/053	Manufacturing Technique of CUBAN Diamond Blanks	32	UNIDO	Ministry of Geology
CPR/80/040	Techniques in Direct Coal Liquefaction	700	UNIDO	Ministry of Coal
CPR/80/054	Training Centre on Materials Science - Metals	200	1/	Academy of Sciences

ENVIRONMENTAL PROTECTION AND HEALTH

CPR/80/004	Training Centre in Primary Health Care	200	WHO	Ministry of Health
CPR/80/030	Biomedical Information Centre	200	WHO	Ministry of Health
CPR/80/031	Research Centre in Traditional Medicine	300	WHO	Ministry of Health
CPR/80/032	National Drug Standardization Research Centre	150	WHO	Ministry of Health
CPR/80/033	Food Hygiene Standards and Quality Control	150	WHO	Ministry of Health

Project No.	Project Title	UNDP Inputs (1000 US$)	Executing Agency	Government Implementing Agency
CPR/80/036	Experimental Centre (Shanghai) for Clinical Diagnosis	200	WHO	Ministry of Health
CPR/80/070	Research-Dental Science and Periodontics	160	WHO	Ministry of Health
CPR/80/040	Prediction Experiment in Beijing - Tianjing - Tangshan - Zhang Regions (earthquake prediction)	1000	UNESCO	The State Seismological Bureau of China
CPR/80/055	Strengthening the Institute of Urinary Surgical Science	150	WHO	Ministry of Health
CPR/80/051	Controlling Air Pollution at Thermal Electric Plant	100	[illegible]	Ministry of Electric Power
CPR/80/030	Improvement of Techniques in Pollution Measurement	300	WHO	The Office of Leading Group of Environmental Protection of the State Council
CPR/80/039	Environmental Pollution Control in Beijing	300	WHO	Beijing Municipal Environmental Protection Bureau
EDUCATION AND CULTURE				
CPR/80/044	16 m.m Film Laboratory	250	UNESCO	Ministry of Culture
CPR/80/043	Strengthening of China Printing Science Technique Institute	250	UNESCO	CPSII
CPR/80/041	Improvement of Technical Training and Research in Universities (Wankai & Xiamen)	800	UNESCO	Ministry of Education
CPR/80/027	Pilot Centre for Secondary Education	200	UNESCO	Ministry of Education (Shanghai Normal University)

Project No.	Project Title	UNDP Inputs (1000 US$)	Executing Agency	Government Implementing Agency
MINERAL RESOURCES (INCLUDING WATER RESOURCES)				
CPR/80/018	National Reference Centre for Hydrological Data	250	WMO	Ministry of Water Conservancy
CPR/80/019	Automatic Flood Forecasting System of Sanmenxia to Huayuankou Reach of Lower Yellow River	300	WMO	Ministry of Water Conservancy
CPR/80/040	Laboratory for Geological Samples Testing	200	UN-DTCD	Ministry of Geology
CPR/80/064	Manufacture Techniques of Quarts-spring Gravimetre	30	UN-DTCD	Ministry of Geology
CPR/80/*	Quick Analysis of Geological Samples	130	UN-DTCD	Ministry of Geology
CPR/80/063	Deep Oil-well Drilling Techniques	80	UN-DTCD	Ministry of Geology
CPR/80/065	Research on Geothermal Resource in Beijing Area	250	UN-DTCD	Ministry of Geology
CPR/80/049	Training Centre for Drilling Techniques	500	UN-DTCD	Ministry of Petroleum
INDUSTRY				
CPR/80/005	Research Centre for Synthetic Fibre	500	UNIDO	Ministry of Textile Industry
CPR/80/008	Research Centre of Plastic Techniques	450	UNIDO	Ministry of Light Industry

* Possibly combined with CPR/80/040

Project No.	Project Title	UNDP Inputs (1000 US$)	Executing Agency	Government Implementing Agency
CPR/80/007	Leather Technology Centre	250	UNIDO	Ministry of Light Industry
CPR/80/008	Synthetic Pesticide Pilot Plant	150	UNIDO	Ministry of Chemical Industry
CPR/80/009	Chemical Engineering Research Laboratory	400	UNIDO	Ministry of Chemical Industry
CPR/80/010	Improvement of Building Materials Production - Phase I	300	UNIDO	Ministry of Building Materials
CPR/80/017	Testing and Manufacture of Tractor & Motor Farm Machinery	700	UNIDO/FAO	Ministry of Agricultural Machinery
CPR/80/031	Application Laboratory for Synthetic Dye-stuffs	300	UNIDO	Ministry of Chemical Industry
CPR/80/050	TV Picture-tube Production	500	UNIDO	Fourth Ministry of Machine Building
CPR/80/047	Metallurgical Technology	500	UNIDO	Ministry of Metallurgy
CPR/80/052	Improvement of Machine Building Technology	500	UNIDO	First Ministry of Machine Building
CPR/80/030	Automobile Bearings Manufacturing and Training	200	UNIDO	First Ministry of Machine Building
CPR/80/045	Manufacturing techniques of Aluminium doors and windows	500	UNIDO	The State General Administration of Building Construction
INFRASTRUCTURE				
CPR/80/001	Workshop on Port Administration in New York	25	Govt.	Ministry of Foreign Trade and Ministry of Communication

Project No.	Project Title	UNDP Inputs (1000 US$)	Exe-cuting Agency	Government Implementing Agency
CPR/80/012	Training Centre for Managers of Enterprises	300	CPE/UNIDO	State Economic Commission
CPR/80/024	Strengthening Telecommunications.	615	ITU	Ministry of Post and Telecommunications
CPR/80/042	Strengthening of Beijing No.2 Foreign Language Institute (Foreign languages for special purposes)	400	Govt.	Beijing No. 2 Foreign Language Institute
CPR/79/026	International Centre for Economic and Technical Exchange	600	Govt.	Ministry of Economic Relations with Foreign Countries
CPR/80/037	Shipping Data Processing Centre	250	IMCO	Ministry of Communication
CPR/80/038	Coastal Engineering Research	200	UNESCO	Ministry of Communication
CPR/80/	Programme Personnel Training and Consultancies (e.g. Animal Production in Arid Zones - Animal Health / Diagnostic Laboratories - Photocopying Machines manufacturing)	1032	Various	Various
CPR/80/	Pre-investment Projects	1000	Various	Various
CPR/80/	UNDC Projects	1500	Various	Various

Reminiscence

Dr. Bethune's Spirit Will Live For Ever

by Jiang Yizhen

This is an abridged translation of a first-hand account from the late 1930s when the Chinese people were waging a war against Japanese imperialist aggression. The author, then working with Dr. Bethune in the field hospitals of the 8th Route Army in the enemy's rear areas, vividly describes Dr. Bethune's great spirit of internationalism.

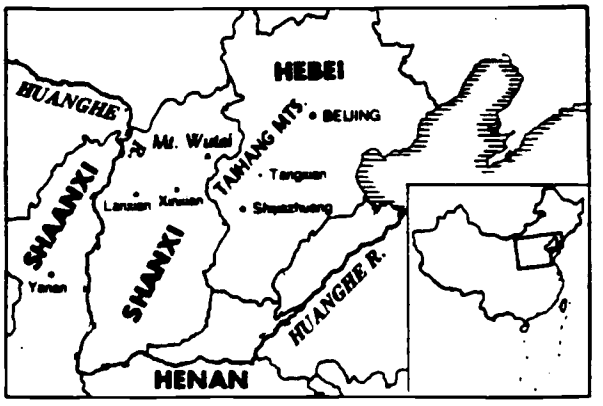
The author, Minister of Health in the late 70s and now Second Secretary of the Hebei Provincial Party Committee, wrote this article to commemorate the 40th anniversary of Dr. Bethune's death.

(I)

I HAD just returned to Yanan in the spring of 1938 from leading a cavalry company across the Huanghe River—still full of ice floes—into Shanxi Province to bring wounded soldiers back to the rear for medical treatment when I was suddenly told to go and receive Dr. Norman Bethune of the Canadian-U.S. Medical Team. I had heard that Dr. Bethune was a surgeon of remarkable skill who had performed several major operations with Dr. Ma Haide* after arriving in Yanan. A lot of wounded had just arrived from the battle of Pingxingguan and I wanted to consult someone about some of the difficult cases. So the opportunity was really a golden one.

Dr. Bethune was quartered in a compound at the foot of Phoenix Hill. His room was chock-a-block full of several big cases of medical equipment and medicine, including an X-ray set, which he always carried with him. A striking man with grey hair and blue eyes, he looked very kind. But his prominent brow and wide chin indicated a sense of purpose and determination. He wore a short coat and high leather boots which gave him a refined and militant appearance suited to that of a soldier or a poet. When we met, he handed me his name card. I hastily apologized for I had none to give him. However, as sooh as he heard about the new casualties coming in from the front, he threw aside all ceremony, hastily picked up his medical kit and hurried me off.

A great number of wounded required urgent medical attention. They were scattered in dozens of caves along the valley. Only the seriously injured could be given tattered cotton quilts, others had to make do with a rough mesh of cottôn. We badly needed medical equipment and even such ordinary medical supplies as methylated spirit, anaesthetics and adhesive tape could not be found. As for soap and towels, they were luxuries which we never even dreamt of having. Dr. Bethune followed me from one gulch to another. When I commented: "Conditions here are pretty bad," Dr. Bethune replied: "That's true. It's because conditions are bad that we have to work. As soon as I came to



*Ma Haide (George Hatem) is an American doctor who came with Edgar Snow to Baoan in northern Shaanxi in 1936. He remained and joined the Chinese Red Army.

Yanan, someone told me that one mustn't judge medical work in the Eighth Route Army according to Western standards or make comparisons with big hospitals outside, and that it's impossible to transplant regular hospital procedures here. That, I have come to see and believe. But how can we make some progress?" He then pointed to a man hobbling along on crutches and asked: "Don't you feel there are too many cripples?"

I had already noticed that most of the cripples had had their legs amputated because their wounds had been improperly treated. I, therefore, frankly admitted that this situation was due to our poor knowledge and skill. I explained that very few of our doctors had attended a regular medical college or school or had worked in a modern hospital. He then asked how I became a doctor. I told him that I had been an apprentice at the Red Army Hospital ten years earlier and later I had attended the Red Health School in Jiangxi Province. During the Long March there were thousands of wounded and no medicine or doctors to treat them. I felt so sad about it that I took a pair of tailor's scissors and operated on my class brothers. Later we captured a set of scalpels and surgical scissors from the enemy so I learnt as I practised. I could be considered fortunate for I had more training than many of our medical personnel who hadn't been given any instruction on sterilizing wounds to prevent serious infection or on using splints. So many patients with broken limbs were not getting proper treatment. Dr. Bethune listened carefully and then suddenly seized my hand and firmly shook it, saying: "I'm deeply moved by the way you have stuck to your work in such primitive conditions. We should set up a school to train medical personnel. I'm sure most of the wounded here didn't have to become cripples. If we could have operated on them within 24 hours after they were wounded and put splints around their broken bones, their legs would not have had to be amputated!" He then added: "I've already spoken to Comarde Mao Zedong about organizing mobile operating units for the front. I am positive that 75 per cent of the badly wounded can recover if operated on immediately. What do you think?"

It was a bold idea for the world had not yet seen such a high recovery rate. Obviously, Bethune had formulated a new concept for medical treatment. He said that after seeing the existing conditions, he felt more strongly than ever that he should be at the front as soon as possible. It was ridiculous, he said, to let a patient's condition deteriorate to an extent beyond remedy before any treatment is given to him. These soldiers fervently want to recover and return to the front. How can doctors let them hobble off on crutches?

For several days running, Dr. Bethune performed major operations and worked with us to reorganize the hospital. Two big rooms were vacated and swept clean to serve as operating rooms. We made some mattresses by stuffing cloth with straw. The odds and ends of the cloth were made into towels, gauze dressings and surgical masks which were sterilized by steaming. We also divided several dozen patients into different categories according to the nature of their wounds so that treatment could be given in an orderly fashion. I felt that Dr. Bethune worked with a purpose in mind and was not out for superficial appearances. He knew how to organize work along scientific principles and was good at getting others to join him in the work.

It was a pity that not all of us understood his bold, creative ideas. We discussed his proposal to organize mobile operating units for the front several times but made no headway. Some people said that he was needed in Yanan, some said that conditions were too difficult behind enemy lines; and others said, a man nearing 50 couldn't take the physical strain and should be taken care of. The more we talked, the more complicated the problem appeared. When the gist of our conversation was translated for Dr. Bethune and he heard that he should be given special care and attention, he leapt out of his chair, picked it up and hurled it out the window. The chair crashed through the lattice window and landed in the courtyard. He shouted angrily: "I didn't come here to enjoy a good life! Rare roast beef, ice cream and soft beds are stuff I had long ago! I gave them up to realize my ideals! It's the wounded that need care and attention, not me!" All of us were shocked. However, the difficult problem suddenly became very simple. Everyone said in one voice: "All right! To the front then!"

Later, Dr. Ma Haide quietly reminded Dr. Bethune that he had behaved discourteously. Dr. Bethune, however, chuckled and said: "I'm willing to apologize to everyone, but you people have to apologize to the amputees with crutches!"

So the problem was solved in the "Bethune style." The supply department loaded all the necessary medicine and medical equipment on to 13 mules. Still, he felt they were not enough.

Dr. Bethune performing an operation on a wounded soldier at the front.

He only agreed to leave the X-ray unit behind when he heard we had to slip through the enemy blockade lines and we already had an unwieldy load. On May 2, like a victorious general, Dr. Bethune set out in high spirits with his cavalcade for the Shanxi-Chahar-Hebei base area. It was decided that Dr. Ma Haide was to act as Bethune's liaison with the outside world. He was beside himself with joy and looked very satisfied. When I went to bid him farewell, he grasped my hand and said: "Gone are the days when doctors stayed at the rear to wait for the wounded to come to them. The doctor's place is at the front!"

(II)

In August, I led a medical unit to the Shanxi-Chahar-Hebei base area. Before we set out, Dr. Ma Haide gave us some Canadian cigarettes, chocolate bars, a tin of cocoa and a tube of shaving soap for Dr. Bethune. Bethune's X-ray unit was also loaded on to a pack animal and, braving the midsummer heat and sun, we started on our journey. When we arrived at the Shanxi-Suiyuan area, however, we had to stop to deal with the huge number of wounded who had gathered at an operating room set up by Dr. Bethune when he passed through three months earlier. There were 300 wounded in Xinxian County and 600 in Lanxian County and there were only two surgeons in the area. After the Kuomintang troops fled, the Eighth Route Army became the main force fighting the Japanese behind enemy lines and the number of casualties had mounted steeply. Some of the soldiers were only lads of 17 or 18. They had been wounded before there was time to issue them uniforms. As Dr. Bethune had said, they were brimming with enthusiasm, knew no fear and had never experienced the taste of "disillusionment" in life. A doctor must not let a patient become disillusioned. So we had to break our journey and do our best for them.

Winter was coming when Dr. Bethune again cabled, urging us to hurry on. We set out for the Wutai Mountains in wind and snow and arrived at the site of the No.2 clinic of the rear base hospital of the Shanxi-Chahar-Hebei military region. Four days later, enemy planes circled over and strafed the village. Fighting had also started in the ambush along the highway between Guangling and Lingqiu. We decided to hurry to the battlefield where we could hear the sound of shooting. The field hospital was situated six kilometres away from the battlefield. Though the site had been chosen by General Wang Zhen, the commander of the 359th Brigade, he was now worried about its safety as the enemy was using planes, tanks and poison gas, so he personally came to direct the medical work on the battlefield. The operating room had been set up in a ruined temple and stretchers holding the wounded blocked the entrance. There was only Dr. Bethune to perform operations. When we arrived, we discovered that he had been operating for 40 straight hours. The anaesthetist who doubled as interpreter had swooned from overwork and Dr. Bethune had ordered him to rest. There was no gas lamp in the temple, only two dim hurricane lamps. Long-sighted, Dr. Bethune was having trouble performing operations for such a long stretch of time in this poor light. He had to stoop down and examine the wounds with a flashlight. Despite the bitter cold, his brow glistened with beads of sweat and his chapped lips bled. We didn't bother to unload our pack animals and set up an operating table. In fact, we didn't even waste time talking. I rushed up to him and took the scalpel from his hands. He picked up the fur hat from the floor that General Wang Zhen had sent him and tottered out of the operating room. Completely exhausted, he could hardly stand up straight.

The fighting was heavy. Our men wiped out 700 to 800 enemy troops and sustained some

600 to 700 casualties. It took us another whole day and night to finish treating the wounded. On December 7, we returned to Yangjiazhuang Village and met Dr. Bethune who had just returned from an inspection tour of the rear area hospital. As soon as he saw me, he threw an arm round my shoulders in a semi-hug and joyfully exclaimed: "Magnificent! I've just examined all those we operated on at the front and only one out of the 71 died! None of them got infections! This is unprecedented! It's a big step forward!"

When Bethune had personally told Comrade Mao Zedong back in Yanan that an operating unit set up near the front could save 75 per cent of the seriously wounded, someone had scoffed behind his back that it was "an idle boast!" However, in a little more than half a year, Dr. Bethune had accomplished the task which was a breakthrough in the annals of medicine. He had, furthermore, surpassed his 75 per cent expectation, so it was no wonder he was so elated! Later, he wrote a report to the region's commander General Nie Rongzhen, describing the details of the achievement and pledging, "We can do even better!" Bethune's motto was: Do better, and better and still better! If today isn't better than yesterday, then life is meaningless!

After several months at the front, Dr. Bethune had grown thinner, become wan and sallow and looked a bit uncouth. He wore a grey cotton army uniform with long puttees wrapped around his shanks. He had grown a thick, gray beard which was flecked with white and which made him appear much older. But he looked happier and more lively. After he had calmed down from his excitement, I handed over the things we had brought him from Yanan. It was then that I discovered that an important part of the X-ray set was missing. I couldn't understand what had happened. Did we forget to bring it with us in the rush of packing, or had it been lost en route? Because of this, a valuable piece of equipment had turned into a pile of junk. Dr. Bethune did not scold us. Instead, he said: "Well, as there's no dynamo to be found here, the X-ray unit can't be of any use." He then picked up the tube of shaving soap and burst out laughing: "I've no use for shaving soap now that I'm sporting a beard!"

He was very disappointed that we had not brought him books, newspapers or journals as he missed reading materials. He said: "I'd swap all this for a newspaper!" After a while, he began gaily chattering away with the few newly learnt words of Chinese: "I'm very fortunate, very happy, very satisfied. I have everything: potatoes, a stove, coal, firewood, a horse, a saddle and a fur hat. I'm living like a king!"

(III)

When we left Yanan, Dr. Ma Haide said jokingly that Bethune was a "dangerous man." I noticed he loved to kick up a fuss and get into trouble. He was not quiet and wouldn't let others enjoy being quiet. Even his colleagues complained: "A friend like him is really exhausting." Wherever he went he smashed everything that was set hard and fast. After I got to know a little about Bethune's life, I, too, felt that he was a rebel against the old world, old concepts and old customs. He was always full of creative energy.

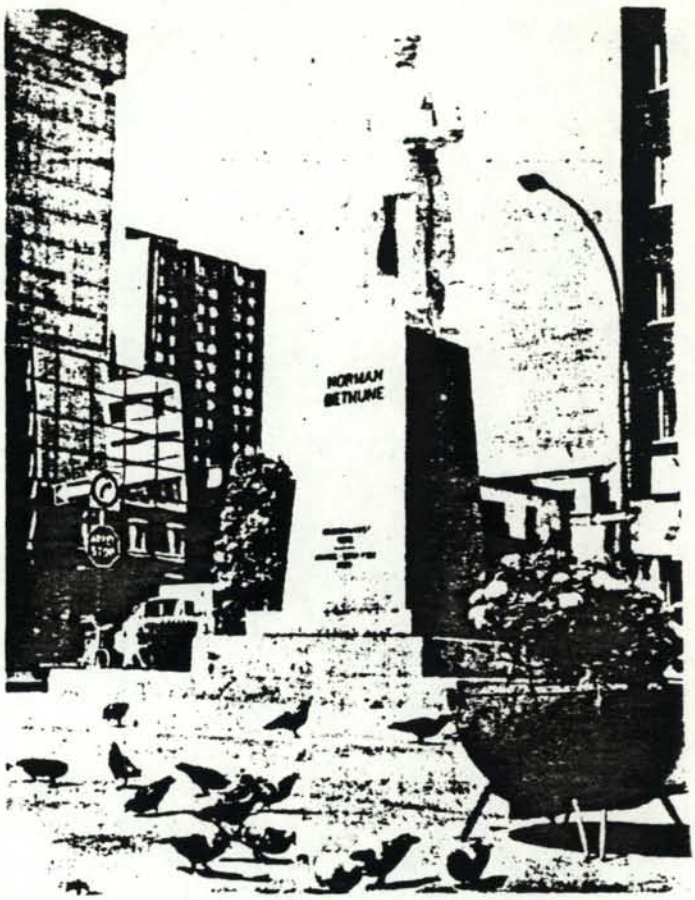
Dr. Bethune grew up in a comfortably-off family. His grandfather was a doctor, his father a clergyman, and his mother a missionary. Even before he started going to school he had commenced dissecting insects and animals and investigating anatomy. During his days as a medical intern in London, he earned money by collecting works of art. He was well on the way to making a fortune when he tired of such dealings and went to Detroit, U.S.A., to set up his own medical practice to serve the poor. Some "famous doctors" referred patients to him that they could not heal or those they had mishealed. Dr. Bethune's fame grew and he prospered financially. He then noticed that those "famous doctors," who charged Bethune a commission for having referred their patients to him, had wrongly set their patients' broken limbs on purpose to rake in more money. He declared war on such criminal deeds and proposed socialized medicine of "taking medicine right down to the people." Later, he cast aside the chance of becoming rich and threw himself into the cause of the Spanish people's struggle against fascism. He devoted his life to working for a better society. His life was like that of a raging fire.

He came to China in 1938 to fight alongside us. He did not regard himself as a foreigner and loved being called an "Eighth Route Army man." He was fond of calling soldiers "my son," and regarded the special concern shown him as a sign of disrespect. When he found that he was receiving more pocket money than others, he sternly protested. After being in the Shanxi-Chahar-Hebei area

for half a year or so, he brought order to the medical and health work, set up a model medical unit, and established various rules and regulations. He worked 18 hours and performed eight operations a day on an average. He took part in all kinds of work, no matter how big or trivial. He designed teaching materials, drew up programmes, wrote poetry, painted and even began to write a novel. He never cared about the hardships of life. He had no radio, no sofa, no bathtub, no amusements, no newspapers, and because of the language barrier, there was no one with whom he could have heart-to-heart talks. Instead, he climbed hills, forded rivers and dodged shells and bullets. Such an existence he regarded not as a hardship but as happiness, for he had found the most precious "comrades who were disciples of communism." He felt that to live and work together with such people was the greatest happiness in his life.

He was not always easy to get along with, but was kind to his patients, bringing them bottles and pans. He would fly into a rage whenever he encountered procrastination, indecision or sloppy work, and would not forgive any manifestation of irresponsibility towards the patients. Once, when he saw a doctor using a scalpel to peel a pear, he angrily pushed the doctor out of the room and banned him from performing surgery. He slapped a doctor for not putting splints on a fractured limb. Many people complained that he was bad tempered. He, however, often said that "a doctor must have the heart of a lion and the hand of a lady." He was like a mother to the wounded and like a raging lion to those who were rough with patients.

Of course, these conflicts and squabbles also bothered Dr. Bethune. Many medical workers in our army were illiterates who put their faith in good intentions and not science. The best way to deal with the problem was not to fly into a temper but to raise their medical knowledge and skill. In Yanan, Dr. Bethune had suggested to Comrade Mao Zedong the training of medical personnel and had even expressed the hope of sending them to be trained in big cities. After crossing the Huanghe River, he realized how impractical his idea was. As soon as he arrived at the Shanxi-Chahar-Hebei area, he wrote a letter to the Party Central Committee and the military area command proposing that a "well-equipped medical school" be established to train medical personnel. How easy it was to talk about being "well-



Bethune's statue at Bethune Square in Montreal, Canada. (Presented by the Chinese People's Association for Friendship With Foreign Countries.

equipped" for, in fact, we had to be content with the simplest and most primitive instruments.

On January 3, 1939, weekly surgical courses formally began and the trainees for each course numbered 50. Dr. Bethune wanted me to teach as he had language difficulties. More important, he wanted to go to the front to propagate his experience in organizing mobile operating units to work near the battlefield. I knew that he had sent a cable to hasten me there to set up a school, so I had to reply, "I'll give it a try." Seeing that I agreed, he joyfully exclaimed: "Now, I have another 'other self'!" I replied with a laugh: "I'm not your 'other self'. I'm your scapegoat!" When the interpreter translated this for him he roared with laughter.

After a meal of meat dumplings on the evening of the Spring Festival, Dr. Bethune took a mobile operating unit eastward to the central Hebei plain area where the fighting was heaviest. It was snowing and the weather was freezing. He had on his beloved fur hat with the earflaps down and had muffled up his face. His energetic figure was soon swallowed up in the blinding snowstorm.

INSTITUTE OF CURRENT WORLD AFFAIRS

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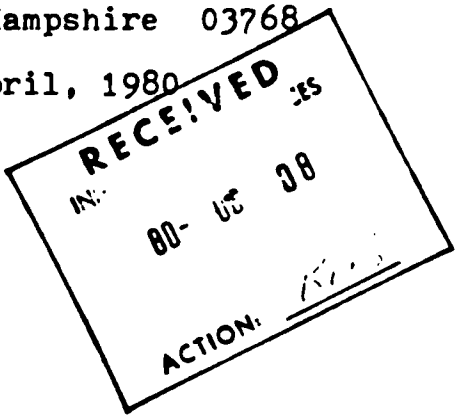
In China: a time to study

29 April, 1980



Mr Peter B. Martin
Executive Director
Institute of Current World Affairs
4 West Wheelock Street
Hanover
New Hampshire 03755

Dear Peter

December 14, 1979. Passengers on Tarom flight 245 from Bucharest are disembarking in Ben Gurion International Airport. Most of them are young Israelis returning from vacation in Rumania. My wife Brenda and daughter Anna are getting on the airline shuttle bus to go to the terminal. I follow, two or three passengers behind them. I sense being addressed and look to my left. A young woman Sabra in civilian clothes standing on the tarmac by the bus door addresses me in a language that I do not get. Is it Hebrew, Arabic?
-"Sorry, I did not get you."
-"Passport please," she said in English.
I put down my hand luggage, search for the passport in my coat and jacket pockets, only to remember that the passports are in the briefcase with Brenda on the bus.
-"My passport is in my briefcase on the bus." I said to her.
-"Ah! You have a friend too. Call your friend and get the passports."

I have always considered Brenda my friend and was happy to hear the Sabra confirming it. I get on the bus, call Brenda from over the heads of half a dozen passengers, get off the bus only to see the door being shut. Suddenly a man jumps to the front of the bus from behind me, and orders the driver to open the door. I look around me, now fully aware of what is going on, to see that I am surrounded by people, some in civilian clothes and others in military uniform, armed with the famous Uzi gun. The door of the bus opens. Brenda appears with a puzzled look on her face, Anna tugging along. Little does the Sabra know that I have two friends with me not one.

I retrieve the passports from the briefcase. The Sabra feasts her eyes on the many Chinese visas stamped

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Joseph Y. Battat is currently an Institute Fellow and his area of interest is the People's Republic of China. Up until recently he lived there with his family for two and a half years.

in my passport and orders us to follow her. We go to the left towards a red-haired man standing in front of a yellow US-made van, with an Uzi strapped on his shoulder. He is busy examining the passports of two young Arab-looking (or shall we say Semitic-looking) men. After a brief exchange he lets them go. Then comes our turn. He glances through our papers, and invites us to get into the van. The doors shut from the outside. He asks Brenda to sit on a bench beside him, and me on a chair across a small table from him. The interrogation begins with the Uzi laid on the table, its muzzle pointing straight at my heart.

Welcome back to the REAL world!

January 1980. Although I have not written a cheque for two and a half years I remember that using personal cheques is more practical than using cash all the time. So I present myself to a Baybank branch in the Boston area and infom the teller that I want to open an account.
-"You have to see the manager," she says.
-"How much money do you want to put in your account?" asks the manager.
Having heard my answer he then fires his machine-gun with unexpected ammunition: $500.00 minimum balance, NOW account, family account, personalized cheques, your needs, choice, service charges, extended credit, and 5% interest.
-"Now which account do you want to open?" he shoots at me, without giving me time to blink. I feel drunk with all his words whirling in my head, and try to choreograph them into something meaningful.

Welcome back to the REAL world!

Not that we have been living in an unreal world but in a different one.

A world, as seen through our eyes, where: wherever we go there is a large thermos bottle full of hot water and a cup of Chinese tea waiting to be enjoyed. A world where we have a chauffeured black limousine at our disposal but it takes fifty minutes to cover 9.6 miles to go to work daily. A world where we are the center of attraction often surrounded by more than a hundred pairs of inquisitive eyes, yet feeling at times desperately isolated. A world where we are not free to travel beyond a certain perimeter without permission from the authorities, yet when we do all sorts of doors open to us and we enjoy first-class treatment. A world where lunch at work is more like a banquet prepared by a special chef, yet we long for a bacon, lettuce and tomato sandwich. A world where the chief surgeon in a

hospital delays his supper to operate on me until late in the evening, then gives me his meal when he finds out that the canteen is closed, and goes back home where he will have very little to eat until the next morning. A world where Chinese is spoken. A world so different from ours that we ended up not learning about it so much as learning about ourselves and our own society.

Yes, Peter, I was in China and lived there for two and a half years!

"May I see your radio?" asked the Chinese Customs officer, after glancing at the customs form I had just filled. I had to declare the foreign exchange, cameras, watch, and electric and electronic equipment I was carrying with me into China. I obliged and handed him my Sanyo Model RP8700 short-wave radio which turned out to be my major source of news from the West for the duration of my stay in China. He examined it turned it around and around, fingered the dozen or so knobs, attempted to pry it open, and finally looking defeated said:
"Cassette?"
"No, radio" I replied
"Cassette!" he insisted and went back to fingering the radio searching for the nonexistent cassette recorder.

My explanation of this incident is that I was at the end of a line of fourteen Canadian exchange students clearing customs, almost all of whom had acquired a radio-cassette recorder in Hong Kong before entering China. Only two of us got ourselves short-wave radios. The customs officer, having examined a stream of radio-cassette recorders expected the same from me. In his famous and widely read paper (in China) "On Contradiction," Mao Tse-tung presented the concept of the universality and particularity of contradiction and, if we extrapolate a little, of every question subject to study. But my customs officer rather failed in considering the particularity of my taste. However, "seeking truth from facts," he finally passed it as a radio.

The first year in China, from August 1977 to September 1978, saw me as a Canadian student on a fellowship from the Canada -China Student Exchange Program established in 1973 following Pierre Trudeau's visit to the "Middle Kingdom". A number of similar programs have been established since the early 1970's between China and Japan, Australia, New

Zealand, and Western European and Third World countries. A student and researcher exchange program was established and implemented with the U.S. in 1979 after "normalization" of relations between the two countries.

All students arriving in Beijing(Peking) must go to the Beijing Language Institute (BLI) to study Chinese for six months to a year, depending on their prior knowledge of the language and the progress they make in their studies. Those with adequate Chinese language ability acquired prior to going to China stay for a few weeks at BLI brushing up on the language while waiting to be assigned to a university to take courses in a subject of their choice. The Chinese Ministry of Education reserves the right to choose the university and at times the subject of study too when not enough space is available to satisfy the foreign student's first choice.

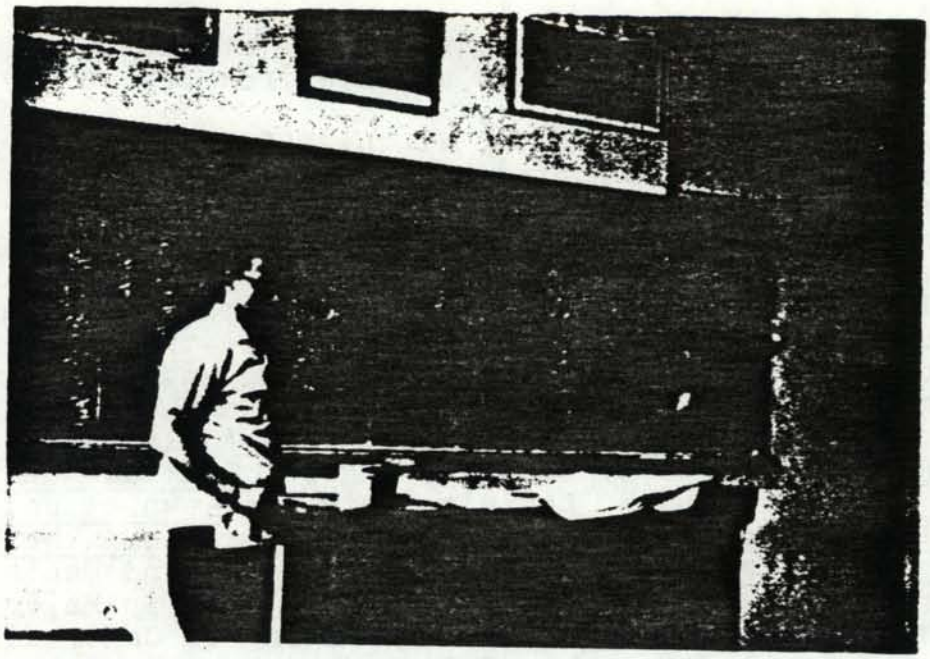
In 1977 one-year courses in the following subjects were offered for students from the Western World: Language, Literature, History, Political Philosophy and Medicine. The universities which were accepting western students at the time included Beijing University, Fudan University in Shanghai, Nanjing University in Nanjing and Liaoning University in Shenyang. The academic level and the range of coverage of the courses were not adequate and often below the expectation of the students who were required in most cases to have already graduated from university. For instance, the only "source materials" used in a semester course of Contemporary Chinese History at Beijing University were the Selected Works of Mao Tse-tung. In a one-year Political Philosophy course given at the same university only original works by Marx, Engels, Lenin and Mao were used. Despite the students' repeated requests, the teaching staff refused to make available original works of philosophers or political scientists, the critique of whom made by the four mentioned above we were studying, or essays analysing the four's writings.

The Third World countries students participated in totally different education programs from that of their Western counterparts. They came for technical and professional degree training in fields such as Medicine (Western and Chinese), Agronomy, Civil Engineering and Textile Engineering. The first year in China is dedicated to the study of the Chinese language and to the attempt to overcoming the cultural shock they are hit with upon their arrival, often compounded by a total lack of preparation about Chinese society, culture, customs and standard of living. Then they undertake their professional training

for a period of four to five years in various universities across China, up one year on average from before 1978.

After a two-month stay at the BLI to raise my Chinese language level, interrupted by a surgical operation and one week's hospitalization, I went in November 1977 to Beijing University to study Political Philosophy. As alluded to before, the one-year course which ended in July 1978 covered briefly the socialist philosophical tenets held in Marxism, Leninism, Mao Tse-tung Thought as understood by the Chinese at the time and taught to foreign students. The works we studied and analyzed are considered classics in the field. They included the Communist Manifesto by Marx and Engels, Critique of the Gotha Program by Marx, Lenin's State and Revolution, Materialism and Empirio-Criticism, Imperialism, the Highest Stage of Capitalism, Engels' Anti-Duhring, and Mao's "On Practice," "On Contradiction," "On the Ten Major Relationships," and "On the Correct Handling of Contradictions among the People" from his Selected Works.

Beijing University set up a special class of Philosophy for Western students. No Chinese students were included. Canada, West Germany, Holland, France, the United Kingdom, Japan and Italy had representation in the class. Lecturers, usually a different one per work studied, covered their materials in two or three three hourly sessions each week. They made the point of using numerous examples, often taken from the Modern and Contemporary periods of Chinese History, to illustrate and elaborate on their teaching. This made the lectures livelier, more interesting, educational and at times controversial. 1977 was a year when a nation-wide ferocious anti-Gang of Four campaign was being waged. This of course was reflected in the course, especially in the illustrations selected by our lecturers. The Gang was labelled, or given a "hat" - ironically, an accusation often thrown at the Gang itself - with all sorts of unflattering philosophical attributes, e.g. metaphysical, non-dialectical and idealist. Some lecturers were carried away to the point of crediting the Gang with the excesses that took place in the Rightist Campaign in 1957 and during the Great Leap Forward. At that time Jiang Qing, Mao's wife, played an insignificant role, if at all, on the Chinese political scene. Zhang Chun-qiao and Yao Wen-yuan were middle-level cadres in Shanghai undoubtedly with very little power to influence local policies let alone national ones. And Wang Hong-wen was a worker or at most a low level cadre in a textile factory in Shanghai.



"Mao Tse-tung On Combining Theory With Practice"
One of many topics studied in the foreign students Philosophy class at Beijing University - July 1978

The most enjoyable part of our study was the weekly or bi-monthly three hours discussions we used to have with our lecturers covering parts of the materials we were studying at the time. The discussions were, to say the least, lively. The students usually prepared well either individually or in small groups prior to the session. The discussions contributed to our understanding of the materials and,more so, of the Chinese understanding and interpretation of it. A repeated point of contention between the students as a whole and the lecturers was the historical and political interpretation and assessment of Stalin's policies in the 1930s and 1940s. The lecturers argued the case that Stalin's major mistakes were to be found in his internal policies and stemmed from the fact that he did not recognize the existence of class struggle and contradictions among the people during the socialist stage of a country's historical development. Thus, instead of using non-antagonistic methods to solve internal problems and differences caused by varied perceptions and legitimate interest, Stalin resolved to the use of force as he considered all contradictions to be antagonistic caused by foreign or internal enemies to Socialism. But he is to be praised for building the Soviet Union's economy and

military power, and for his foreign policy line which checked and defeated Fascism, opposed Imperialism and strengthened International Socialism. Mao Tse-tung gave an assessment of Stalin's policies saying they were 30% bad and 70% good.

The foreign students, particularly the British, begged to differ with Mao's conclusion. The counter-argument went as follows: the suffering and deaths in Stalin's Soviet Union can't be sterilely dismissed merely with albeit important philosophical argument. The German-Soviet Pact was signed in 1939 followed by the German invasion of the Soviet Union, catching it militarily ill-prepared and causing the loss of twenty million lives. The sharing of Poland with Germany and the Soviet-Finnish war in 1939 were not exactly anti-imperialist. Finally and most interestingly, the foreign students argued that had the Chinese Communist Party not resisted the repeated directives and interferences in its own affairs from the Comintern, the People Republic of China may not have existed today!

Despite repeated opportunities to exchange facts and views on the subject, both sides kept their original positions at the end of the academic year.

In 1977 the whole Chinese education system was undergoing major changes, discarding many of the novelties introduced during or following the Cultural Revolution and reestablishing some of the features present in the first part of the 1960s. The selection of students from the ranks of workers, peasants and soldiers gave place to that of using the examination system. The open door schooling quietly died away. The first and major task for the students is to study not make revolution. Top leadership in universities across the nation was being replaced. Universities were being reorganized. So although it was an exciting time for a foreign student to be in a Chinese university, it was not a propitious one to do any serious scholarly research work. Administrative and teaching staff did not know how to handle requests from the foreign students and were waiting for clearer directives from the Ministry of Education. Access to faculty and library facilities were limited. I asked to meet with members of the Economics Department and was turned down. One administrative member of the Foreign Student Office at the university refused even to tell me where the Economics Department building was. At the time post-Mao economic policies were on the drawing board with major modifications and departures from the recent past being introduced. Consequently, Economics departments

in universities were undergoing major readjustment and understandably kept out of bounds from curious foreign students. I am happy to note that beginning Fall 1978 when things began to settle down on the education front, the academic level of teaching and the opportunity for foreign students to do some scholarly research were enhanced. A case in point, although rather exceptional, is that two people in Nanjing University were unofficially working on their doctoral thesis with some teaching staff acting as their advisors cum research assistants.

My extra-curricula activities were varied and straddled over two worlds in Beijing, that of foreign students and of "Foreign Experts." Educational institutions organized visits, trips and cultural activities for their foreign students. When at BLI and Beijing University, I too enjoyed these activities though for the 1977-78 academic year their scope and frequency were reduced due to the ongoing reorganization in the Chinese education field. When at BLI the Canadian students visited Shijiazhuang, a city 250 kilometers southwest of Beijing, where Dr Norman Bethune's Memorial is located. (Dr Bethune is a Canadian surgeon who went to China in 1938 to join the Communists and help them in their guerilla warfare. He died on the war front in 1939 while on duty as a military surgeon.) A foreign student is allowed to travel around China twice a year for a period of three weeks each, the hosting university subsidizing one trip. In addition, I took part in student organized outings such as a 90 kilometers bicycle ride to the Ming Tombs on the outskirts of Beijing and climbing the famous Mount Tai in Shandong Province. Beijing University organized visits to factories, museums and other places of interest. Also, it arranged for the foreign students in the Philosophy class to spend six days of work and discussions in a woolen blanket factory in the northern suburbs of Beijing.

Brenda was the bread winner in the family as a "Foreign Expert" teaching English as a second language at the School attached to the No.1 Beijing Foreign Languages Institute. As her dependent I enjoyed a number of privileges: living in an apartment with hot running water, a bathtub and a shower; access to a canteen where Chinese and international meals are served daily; cheap local transportation and a number of other amenities. Apart from weekly visits to local organizations, cultural performances and trips organized by the Foreign Experts Bureau, we had a series of conferences where distinguished men and women spoke on subjects of politics, philosophy, theater and cinema, education,

health care, literature and economics. But my most valuable experience in the world of foreign experts in Beijing was undoubtedly the personal relationships Brenda and I developed with the majority of her Chinese colleagues, a group of twenty five teachers of English. These relationships grew up to be warm and relaxed, including numerous visits to our respective homes, cooking, wedding and dancing parties, outings and long discussions. Also in 1978, I participated in U.S.-China trade activities, representing a U.S. firm in Beijing. This sideline occupation ended with our subsequent move to Shanghai.

To my mind the most interesting part of being in China at that time was not the study of the Chinese language or Political Philosophy, nor the pursuit of any scholarly endeavour. It was the human experience of living in, and observing a fascinating country undergoing major changes, in the process of assessing its own history of the last thirty years, trying to heal the wounds and repair the damages it had suffered in the last decade, building up all the enthusiasm it needs to face the enormous tasks of bringing itself out of feudalism and into a modern socialist state. That was, and still is for that matter, a country at a crossroad, where decisions were being made and directions being set which will determine the fate of a quarter of humanity. The complexity of the situation in China and the magnitude of the tasks it is facing and willing to shoulder leave nothing short of a deep feeling of awe, and are not easy to describe without giving way to the dryness and impersonality of statistics about the needs and aspirations of one billion people. So I shall limit myself to relating a personal experience as an illustration.

Foreign students at Beijing University live in separate dormitories, one for the boys and the other for the girls. Only two years before my arrival at the university were Chinese students, selected by the administration, allowed to room with their foreign counterparts at the request of the latter. My room was nine feet by eleven, whitewashed with a concrete floor. It was furnished spartanly but functionally: two twin beds, two small tables cum desks and chairs, two book-cases and one clothes cupboard. Light entered through the only window facing the West. A small radiator placed under the window heated the room in the winter. The same size room in the Chinese students dormitories lodged six people. It contained three pairs of bunkbeds, one table and chair, one book-case or perhaps two, and one clothes cupboard. So by Chinese standards foreign students were treated royally albeit not as comfortably as they may have been back home.

One morning in mid-November 1977 a commotion in the hall distracted me from my reading. Then came a knock at the door. I opened it and let in Teacher Liu, one of the two teachers responsible for the foreign students in the philosophy course. He announced that my roomate is about to move in, which he did five seconds later with the help of half a dozen of his friends, mainly female. I was of course the object of curiosity for all of them who were wondering what kind of a strange being their poor friend Li Ling-suo would have to live with now.

Xiao Li, meaning "Young Li" or "Little Li," was a young man of 25 years old at the time, rather tall for a Chinese with a slim body. He comes from a county neighboring the ancient city of Xian in the northwestern part of China. Both his parents worked as shopkeepers in the county seat. So in a way, although they were of peasant lineage, they were not peasants by occupation nor were they workers. He lost his father to illness when he was fourteen years old, his mother and uncle supporting him through school. When he was of high-school age the Cultural Revolution erupted and like millions of his generation he answered the call from Chairman Mao to make revolution. Not only did he make revolution in his county but also carried the revolution into many parts of China and at the same time learning from the peasants. This was a unique opportunity offered to millions of young people to travel free around their country and learn about it. Some of these people I talked to told me that their travels left a deep impression upon them and opened up new vista in their understanding of China, its problems and its people's aspirations. But because of the chaos it generated this practice was stopped in mid-Cultural Revolution.

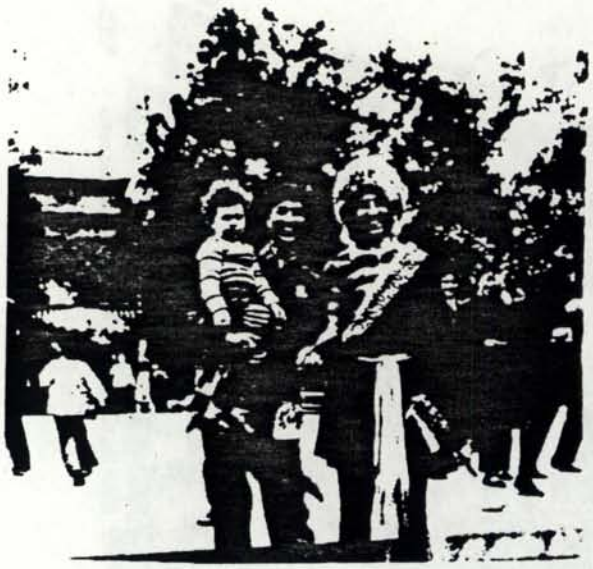
Xiao Li "graduated" from high-school in 1969, an euphemism for he would have graduated with the normal schooling level had the Cultural Revolution not virtually put a stop to the Chinese education system for a period of four years starting in 1969. He then joined the People's Liberation Army for three years and then returned to his home town to work in the Office of the county's Revolutionary Committee. He was then involved in various administrative tasks such as investigating allegations raised against local cadres and doing organizational work in an afforestation project which three years later earned a front page coverage in the People's Daily. During that time he became a member of the Communist Party.

His work unit, in this case the county's Revolutionary Committee, selected him to go to university to further his

Xiao Li and I in Xiao Li's
corner of our room

formal education. He entered Beijing University in 1975 for a three and a half years study of Philosophy. The bulk of the curriculum was Marxist philosophy, but it included an introduction to Western and Chinese Classical philosophies, and a short critique of Modern and Contemporary Western philosophies.

As Xiao Li had worked for over five years (counting his three years in the army) before going to university, he was entitled to his full salary, of 55 yuan (around US$36) a month, paid by his work unit. His salary was a good one for a 25 years old man in China and he was quite well off as a student. In 1977-78, typically a student who didn't receive a salary from his ex-work unit got a 19.50 yuan monthly stipend from the university, 15.50 of which covered the cost of three daily meals at the canteen. The rest, about US$2.60, was to buy books, stationery and for pocket money. Often the family had to subsidize the student. Only when the family per capita monthly income fell short of a minimum amount, around 35 yuan, did the State make an additional contribution in the vicinity of 15 yuan to support the student. To cover similar expenses, Canadian students received 120 yuan from the Chinese government and a subsidy of Can$100 a month, a total of 260 yuan. Tuition, room and teaching materials were provided free for both Chinese and foreign students.



北京海淀红艺

Anna, Xiao Li and I in a Tibetan attire at the Ming Tombs
Spring 1978

Every weekday, Xiao Li and I made the point of finding about one hour a day to discuss all sorts of topics such as politics on the national and international scenes, China's social and economic questions, life in China, North-America, Western Europe and the Middle East, our backgrounds and our studies. He was game to discuss anything. When the subject was China or Marxism, he displayed a good knowledge of facts often citing dates and references. When the subject was the Western World or a question he was not familiar with the tone would be inquiring with a sincere desire to hear the version and interpretation of a foreigner. In the beginning we seemed to talk a different language - literally too, as being from Shanxi Province, he had an accent most difficult to understand - but later we found a common ground on which to communicate our ideas and opinions.

In his opinion, the Cultural Revolution's basic objectives and policies were correct, but because of Lin Biao's, the Gang of Four's and other leaders' abuse of power and Mao Tse-tung's trust, it turned out to be a disaster for China's economy, culture and society. To cover up their mistakes caused by their ultraleftist policies the Gang of Four professed an ultraleftist socialism which stressed economic equalitarianism among other things. Thus China was caught in a vicious circle. The upshot was that China's economy suffered and so did the standard of living of the Chinese. He often used to say: "If socialism does

not improve the life of the people, including their material life, then we do not want this socialism!"

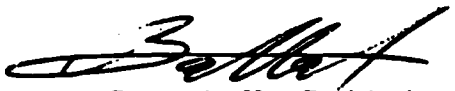
He claimed that there are two essential factors at play in repairing the enormous damage caused by the Cultural Revolution and in putting China on a normal development course. The first is leadership: at the top and at all levels, there is the need for a dedicated group of capable people who have at heart the welfare of the Chinese people at large and who are able to work and cooperate together peacefully in making and implementing policies. The second is to put the stress on economic development in order to afford social reforms. For that a peaceful situation must prevail in industry and rational management practised accompanied by technological development aided by the transfer of technology from abroad. I used to point out to him in various ways the interactions existing between the development and use of technology, and social factors, often using examples from the experiences of the West and the Third World. Whereas in the beginning he used to dismiss them saying that China is different in its culture and political system, he recognized later on the potentiality of problems, thus benefitting us of interesting and rewarding discussions on China's present developmental policies and their possible outcome.

Xiao Li's appetite to learn about the West was matched only by my appetite to learn about China. He wanted to know about our daily life, our education, legal and political systems, our standard of living and purchasing power, the problem of poverty and welfare system - he was quite impressed with the Canadian Health Care System - consumerism, the press, and dozens of other topics. Before becoming my roommate for nine months, Xiao Li's relationship with foreigners was nonexistent until he went to Beijing University and minimal even then as he was living in a Chinese student dormitory. His knowledge of foreign countries came almost exclusively from Chinese sources: books (fairly rare), newspapers (extremely poor and dogmatic coverage until 1978), and the Reference News (a daily selection of news carried in major papers around the world and translated in Chinese). I doubt very much that he had regular access to a short-wave radio to listen to foreign broadcasts. (When together we used to pool and compare the daily news from all the sources available to both of us.) By asking him to share a room with a "Big Nose", the university administration had given him a rather unique opportunity to be in touch with an outside source of information.

Unlike some of his classmates who were roommates of foreign students, he took advantage of the situation to learn as much as possible and satisfy his intellectual curiosity. What he thought of the strange habits and idiosyncracies of a "Foreign Devil" and of the many signs of his society's affluence, he never let me know. He was very courteous, hospitable and helpful to me in more ways than one. We were sorry to part in late July 1978, after his graduation. He has been assigned not to go back to his native county but to help reestablish and teach in a Party school in a neighbouring county. (The system of Party schools was reinstated in 1977). Saying goodbye was an extremely emotional moment for both of us, realizing the rather valuable and unique experience we had shared. Fortunately, we met again for three days in Xian in July 1979 and now keep in touch through our correspondence.

Xiao Li is a "worker-peasant-soldier" student. He is a very intelligent young man, well read, eloquent with a clear mind and a good sense of humour. He was considered one of the best students in his class and many a time his classmates would come to him for help. When one thinks about it, had it not been for the Cultural Revolution's new education policies, had he been selected mainly on scholarly merit upon his graduation from high-school, Xiao Li would have probably never entered university. Or if he did, undoubtedly not the prestigious Beijing University, but a second or third rate one. Nowhere, not even in China, are things just black or white. The Cultural Revolution is not an exception.

Sincerely yours



Joseph Y. Battat

-70-

INTERNATIONAL DEVELOPMENT RESEARCH CENTRE

CENTRE DE RECHERCHES POUR LE DEVELOPPEMENT INTERNATIONAL

CANADA

MEMORANDUM

TO/A: John Woolston
David Steedman

DATE: le 13 mars 1980

FROM/DE: Louis Berlinguet

SUBJECT/OBJET: Programme d'études démographiques et de sciences de l'information en Chine

Il y a quelque temps, je vous avais informé du départ prochain pour Pékin d'un jeune Canadien, monsieur Robert Tellier, que je connais et estime depuis très longtemps.

Je reçois aujourd'hui sa première lettre dans laquelle il me fait part de la situation générale. Il m'envoie de plus un certain nombre d'informations concernant les activités prochaines de UNDP dans les secteurs de l'éducation, de la démographie et des sciences de l'information.

Au cas où ces renseignements pourraient vous être de quelque utilité et connaissant votre intérêt pour la Chine, je me permets de vous transmettre ces documents à titre d'information.

Louis Berlinguet

ORIGINAL PASSED TO: T.GAVIN ✓
Copy passed to: K.Broadbent

c.c. Ivan Head
(sans document, pour information).

BACKGROUND

2, Sanlitun Lidong, Jie
Beijing, République de Chine

M. Louis Berlinguet
premier vice-president
Centre de Recherche pour le
Développement International
C.P. 8500
Ottawa, Ontario, K1G 3 H 9

Beijing, le 29 février 1980

M. Berlinguet, bonjour,

voilà un mois déjà que nous vivons à Beijing au coeur de l'Empire du Milieu. Alors que de jours en jours nous devenons plus familiers avec la vie chinoise, nous faisons aussi nos premières armes dans l'apprentissage du Mandarin. Nos rapports avec les Chinois ont été jusqu'ici extrêmement cordiaux et enrichissants. Ils sont très prévenants à notre égard et manifestent beaucoup d'interêt et de motivation. Ils sont enfin surtout animé par une très vive curiosité; si le nombre de question qu'ils peuvent nous poser dans une journée est parfois incroyable, l'intensité avec laquelle on nous regarde sur la rue et on nous observe dans tous nos mouvements est souvent presque gênante. Il suffit ainsi d'entrer dans un magasin pour regarder la marchandise et de commencer à parler avec le vendeur pour que tout de suite cinquante personnes se massent derrière nous, commentent et discutent. Tout le monde rigole de nous voir la en train d'essayer de se faire comprendre et c'est en somme très sympathique.

Tout comme on nous l'avait décrit, le logement dans cette capitale constitue un probleme de taille. Depuis notre arrivée en effet nous résidons à l'hôtel et il semble qu'il en sera ainsi pour encore un bon moment jusqu'à ce qu'on nous assigne un appartement. Si ca demeure un bon traitement pour des nomades comme nous, il reste que pour bien d'autres comme ces hommes d'affaires qui sont venus en Chine pour établir les bureaux de leurs compagnies, la pilule est parfois dure à avaler. Plusieurs d'entre eux en effet vivent à l'hôtel depuis plus d'un an. Après les correspondants de presse et les diplomates, ceux-ci viennent en dernier sur la liste de priorité pour le logement. Alors que seulement une centaine d'appartements pour étrangers sont actuellement en construction et que 52 d'entre eux devraient être livrés d'ici un à deux mois, 80 ont déja été réservés pour le personnel des diverses ambassades et délégations nationales.

Côté travail, mon épouse, Siri Melchior, s'est engagée avec grande énergie dans les travaux de lancement et de coordination du nouveau programme de UNFPA. Pour ma part, j'ai amorcé mes recherches et pris contact avec quelques bureaux du gouvernement chinois pour faire l'inventaire de mes possibilités d'implication dans des activités de communication. Il souffle en effet en ce moment un vent (une brise) de reforme dans le domaine de l'éducation, surtout du côté du renouvellement des methodes pédagogiques par l'utilisation de techniques audio-visuelles. C'est dans cette veine qu'il me sera je crois possible d'offrir mes services pour aider les Chinois à developper des programmes d'entrainement à l'utilisation de ces instruments pédagogiques en classe, de même qu'à la production de materiel éducatif (illustrations, diapositives, jeux , etc) original et chinois.

D'autres possibilités d'emploi pourraient aussi s'offrir du fait que les programmes d'enseignement des langues prennent actuellement beaucoup de vogue. Beaucoup de Chinois par les temps qui courrent vont aller étudier a l'étranger et les differents instituts de langues étrangères recrutent plusieurs professeurs d'anglais et de français. Il est enfin aussi question que je puisse offrir des services de consultation à court terme en communication à quelques projets de UNDP ou de UNFPA.

Ce nouveau programme des Nations Unies s'est établi en septembre dernier et ce, moins d'un an après que les premières discussions aient été entammées avec le gouvernement chinois. Plusieurs projets n'enbont encore qu'au stade de document mais il semble que ce serait normalement au mois de mars que la machine devrait démarer pour de bon. Je vous fais ici parvenir une liste des projets auxquels UNDP et UNFPA apporteront leur contribution. Dans certains d'entre eux on apportera un support technique et financier à des activités qui mobiliseront des effectifs à l'échelle nationale telle celle du recensement de population de juillet 1981 ou celle du programme de publicité et d'éducation à la planification des naissances. D'autres comporteront plutôt d'importants éléments de recherche et de documentation qui pourraient peut-être intéresser votre organisme.

La plupart de ces projets comportent des budgets desquels une grande partie des fonds iront à l'achat d'équipements, des ordinateurs notamment, et mettent l'accent sur l'apport de services de consultants à court terme plutôt que sur celui d'experts résidents (encore les problemes de logement) de même que sur les stages de formation a l'étranger.

Considerant l'experience hautement reconnue du CRDI dans divers pays en matière de recherche et de documentation et l'interêt que vous portez personnellement à son developpement, j'espère enfin que vos contacts avec les representants du gouvernement chinois seront fructueux et que votre organisme pourra bientôt apporter sa contribution pour favoriser les échanges entre la Chine, le Canada, le Quebec et les autres pays.

Tout comme je vous l'avais exprimé lors de mon passage a Ottawa, soyez assuré de mon entière collaboration pour vous communiquer les information que vous croirez utiles au développement de ce dossier. De même il me ferait grand plaisir d'en suivre les progrès et de m'informer sur les recentes activites du Centre. J'apprecierais vivement ainsi que vous me fassiez parvenir quelques unes des publications récentes du CRDI, plus particulierement celles qui traitent de sujets dans le domaine des communications et des études de population.

En attendant d'avoir le plaisir de votre visite en Chine, je demeure sincèrement vôtre.

Robert Tellier
communicateur

SOCIAL SCIENCES

A LIST OF THE LEADING MEMBERS OF THE CHINESE ACADEMY OF SOCIAL SCIENCES (CASS)

PRESIDENT	Hu Qiaomu
VICE-PRESIDENTS	(In the order of the number of strokes in the surnames in Chinese characters)
	Yu Guangyuan
	Ma Hong
	Deng Liqun
	Xu Dixin
	Zhang Youyu
	Wu Guang
	Huang Xiang
	Mei Yi
SECRETARY GENERAL	Mei Yi (concurrently)
ADDRESS	Chinese Academy of Social Sciences, Jianguomennei Dajie 5, Beijing, China

A LIST OF THE INSTITUTES UNDER THE CHINESE ACADEMY OF SOCIAL SCIENCES

1. INSTITUTE OF ECONOMICS

DIRECTOR	Xu Dixin (concurrently)
ADDRESS	Institute of Economics, Chinese Academy of Social Sciences, Beijing, China

2. INSTITUTE OF INDUSTRIAL ECONOMY

DIRECTOR	Ma Hong (concurrently)
ADDRESS	Institute of Industrial Economy, Chinese Academy of Social Sciences, Yuetan Beixiaojie 2, Beijing, China

3. INSTITUTE OF AGRICULTURAL ECONOMY

DIRECTOR	Zhan Wu
ADDRESS	Institute of Agricultural Economy, Chinese Academy of Social Sciences, Beijing, China

4. INSTITUTE OF FINANCE AND TRADE

DIRECTOR	Liu Mingfu
ADDRESS	Institute of Finance and Trade, Chinese Academy of Social Sciences, Yuetan Beixiaojie 2, Beijing, China

5. INSTITUTE OF WORLD ECONOMY

DIRECTOR	Qian Junrui
ADDRESS	Institute of World Economy, Chinese Academy of Social Sciences, Shatan Beijie 15, Beijing, China

6. INSTITUTE OF MARXISM-LENINISM-MAO ZEDONG THOUGHT

DIRECTOR	Yu Guangyuan (concurrently) Institute of Marxism-Leninism-Mao Zedong Thought, Chinese Academy of Social Sciences, Beijing, China

7. INSTITUTE OF SOUTH ASIAN STUDIES

DIRECTOR	Ji Xianlin
ADDRESS	Institute of South Asian Studies, Chinese Academy of Social Sciences & Beijing University, Beijing Daxue (Beijing University), Beijing, China

8. INSTITUTE OF WORLD POLITICS

DIRECTOR	Shi Gu
ADDRESS	Institute of World Politics, Chinese Academy of Social Sciences, Beijing, China

9. INSTITUTE OF LAW

DIRECTOR	Sun Yaming
ADDRESS	Institute of Law, Chinese Academy of Social Sciences, Beijing, China

10. INSTITUTE OF NATIONALITY STUDIES

DIRECTOR	Ya Hanzhang
ADDRESS	Institute of Nationality Studies, Chinese Academy of Social Sciences, Weigongcun, Beijing, China

11. INSTITUTE OF LINGUISTICS

DIRECTOR	Li Shuxiang
ADDRESS	Institute of Linguistics, Chinese Academy of Social Sciences, Kuoyuan Lu 29, Beijing, China

12. INSTITUTE OF WORLD RELIGIONS

DIRECTOR	Ren Jiyu
ADDRESS	Institute of World Religions, Chinese Academy of Social Sciences, Beijing, China

13. INSTITUTE OF JOURNALISM

DIRECTOR	An Gang
ADDRESS	Institute of Journalism, Chinese Academy of Social Sciences, P.O.B. 8811, Beijing, China

14. INSTITUTE OF PHILOSOPHY

DIRECTOR	Xu Liqun
ADDRESS	Institute of Philosophy, Chinese Academy of Social Sciences, Beijing, China

15. INSTITUTE OF ARCHAEOLOGY

DIRECTOR	Xia Nai
ADDRESS	Institute of Archaeology, Chinese Academy of Social Sciences, Wangfujing Dajie 27, Beijing, China

16. INSTITUTE OF CHINESE HISTORY

DIRECTOR	Hou Wailu
ADDRESS	Institute of Chinese History, Chinese Academy of Social Sciences, Beijing, China

17. INSTITUTE OF MODERN CHINESE HISTORY

DIRECTOR	Lin Danian
ADDRESS	Institute of Modern Chinese History, Chinese Academy of Social Sciences, Wangfujing Dajie, Dongchang Hutong 1, Beijing, China

18. INSTITUTE OF WORLD HISTORY

DIRECTOR	Liu Simu
ADDRESS	Academy of Social Sciences, Beijing, China

19. INSTITUTE OF CHINESE LITERATURE

DIRECTOR	Sha Ting
ADDRESS	Institute of Chinese Literature, Chinese Academy of Social Sciences, Ritan Lu 6, Beijing, China

20. INSTITUTE OF FOREIGN LITERATURE

DIRECTOR	Feng Zhi
ADDRESS	Institute of Foreign Literature, Chinese Academy of Social Sciences, Beijing, China

21. INSTITUTE FOR SOCIAL SCIENCE INFORMATION

DIRECTOR	Yang Chengfang
ADDRESS	Institute for Social Science Information, Chinese Academy of Social Sciences, Beijing, China

22. INSTITUTE OF SOCIOLOGY

DIRECTOR	Fei Xiaotong
ADDRESS	Institute of Sociology, Chinese Academy of Social Sciences, Beijing, China

23. INSTITUTE OF POLITICAL SCIENCE

24. INSTITUTE OF CONTEMPORARY CHINESE HISTORY

CHINA

Social Sciences on a New Footing

Manoranjan Mohanty

THE establishment of a new Chinese Academy of Social Sciences (CASS) by the Fifth National People's Congress (NPC) in March 1978 had indicated the present Chinese leadership's decision to give a boost to social science research in China. During the past one year or so several new institutes have been set up and new periodicals launched and a climate of a relaxed intellectual discussion has been created in the country. Addressing the Second Session of the NPC in June Premier Hua Guofeng said: "Research in the social sciences, centering on the summing up of historical experience and the question of socialist modernisation, is making steady headway, guided by the policy of letting a hundred schools of thought contend, and the interest shown by the masses in theoretical questions is at its keenest since the founding of the People's Republic."

To get some idea about the programmes of the CASS I had a discussion with one of its Vice-Directors, Wen Jize, recently in Beijing. Very modestly he pointed out that for over ten years there was little development in China's social science research and only recently the Academy had initiated various measures. The President of the CASS is Hu Qiaomu, the famous historian, author of the official history of the Communist Party of China. (Hu initiated the theoretical attack on the economic ideas of the Gang of Four with an address to the State Council in July 1978 entitled 'Observe Economic Laws, Speed Up Four Modernisations' and is regarded as Deng Xiaoping's close adviser. He was one of the new members added to the Central Committee at the Third Plenum in December 1978.) There are seven Vice-Directors of the Academy including Wen. Five of them are economists indicating the present focus of studies on economic development. They are Deng Liqun (who is also the representative of the Party Centre), Yu Guangyuan, Xu Dixin, Huan Xiang and Ma Hong. Another Vice-Director is Zhou Yang who was the famous party theoretician on literature and art prior to the GPCR and Vice-Minister of Culture. Wen pointed out that all of them were veteran Marxist scholars with several decades' experience behind them. One might add that all of them were persecuted during the past decade in various degrees.

There are so far five institutes in the field of economics. Some of them existed prior to the Cultural Revolution as part of the Academy of Sciences. One of these, Institute of Economics, deals mainly with theory. Its Director is Xu Dixin who is also the Chief Editor of the newly launched journal *Jingji Guanli* (Economic Management). This journal exclusively deals with the questions of enterprise management in China and foreign countries. The Institute of Industrial Economics is a newly set up institution under the directorship of Ma Hong. Another economist, Zhang Wu, is the Director of the Institute of Agricultural Economics and Liu Minfu is the Director of the Institute of Finance and Trade. The Institute of World Economics headed by Qian Junrui publishes a new journal called *Shijie Jingji* (World Economics). Another important journal, the *Jingji Yanjiu* (Economic Studies) whose publication was interrupted during the high tide of the Cultural Revolution is also published by the CASS with the collaboration of these institutes.

The CASS Vice-Director emphasised that there was dearth of concrete and systematic data relevant to China's economic development; so most of the economists were engaged in the study of concrete problems at present. The Academy plans to set up two additional institutes shortly — one dealing with technical aspects of economics and the other specialising economic measurement.

The Institute of Philosophy has undergone some reorganisation recently and an Institute of Marxism-Leninism-Mao Zedong Thought has now been separately established. The old journal *Zhexue Yanjiu* (Studies in Philosophy) has been revived. Another new journal is *Sixiang Zhanxian* (Ideological Front). (Later I learnt that an Institute of Studies in Religion under the directorship of Huang Xinquan, specialist on Indian philosophy, has recently been set up.)

In China, literature — in fact the whole of humanities — still comes

under the purview of social sciences. The Institute of Literature is headed by Sha Ding and a separate body called Institute of World Literature has been set up under the directorship of the former Beijing University Professor Feng Zhi who is also a well known poet. There are many journals published in these fields. Among them are *Renmin Wenxue* (People's Literature), *Wenxue Pinglun* (Literary Criticism), *Zhongguo Yuwen* (Chinese Language) and *Shijie Wenxue* (World Literature) which some time back published excerpts from Ji Xianlin's translation of the Valmiki Ramayana.

Historical studies have been boosted by greater specialisation. The Institute of History now confines itself to the ancient period whereas a new one, the Institute of Modern History, deals with the period since the Opium War (1839). There is a proposal to establish an Institute of Contemporary History to cover the period since the 1919 May Fourth Movement. The Institute of Archaeology which had always been active has now been further strengthened. The Institute of History has just published the first of a thirteen-volume collection of oracle-bone inscriptions edited by late Gou Moruo (Kuo Mo-jo). Among the historical journals the monthly *Lishi Yanjiu* (Historical Studies) has continued for many years now. Two quarterlies have been recently launched: Lishi Xue (Study of History) mostly dealing with ancient history and *Zhongguo Shi Yanjiu* (Studies in Chinese History) covering the entire spectrum. It is quite clear that Economics and History are the two social science disciplines which have kept the lead in China.

The Institute of World Politics has undergone some change recently. At present it has only three programmes of studies relating to the Soviet Union, United States and Japan. Lack of trained personnel and office space had prevented its growth. The Institute of Afro-Asian Studies has continued to function and its present Director is Zhao Baoxu. Out of its scope has emerged the South Asia Institute (SAI) which is jointly run by the CASS and the Beijing University though located at the latter's campus. Its Director, Ji Xianlin, was a member of the Wang Bingnan-led delegation to India in March 1978. There are nearly 30 old and middle-aged scholars attached to the SAI, most of whom work in the fields of language, literature and history. Its current projects include a General History of India, An Introduction to the Indian States and their People, An Outline History of Hindi Literature and A Profile of Indian Economy. There is also a massive project to study regional economic development of selected states of India under the overall guidance of the grand old economist, Chen Hansheng, who at the age of ninety is still studying South Asian economy. (In a separate interview Chen Hansheng who spent many years in India in the early fifties reminisced about his old friends of those days, Sachin Chaudhuri and B N Ganguly.)

There is also the Linguistics Institute with Lu Shuoxiang as its Director. Lot of attention is now paid to the study of minority 'nationalities' languages. There are two new journals: *Fangyan* (Dialect) and *Minzu Yuwen* (Nationalities's Languages), both published quarterly. The Institute of Journalism was set up recently to train journalists and conduct research in communication. A corresponding journal, *Xinwen Zhanxian* (Studies in Journalism), is published bimonthly now.

Another newly set up organ is the Institute of Intelligence (Qing Bao) Studies. Vice-Director Wen hastened to add with a smile that some foreign friends compared this with the CIA, but actually the aim of this institute was only to study the trends in social sciences in various countries so that China could learn from foreign experiences.

In addition there is a Department of Earthquake Material Compilation under the CASS to sort out the vast Chinese material available on the subject so that the knowledge could be made available outside China. Asked about Sociology the CASS Vice-Direc-

tor said that there was no institute yet on this subject, but there was a Sociology Society which was chalking out a programme of studies. Similarly a programme in Futurology (Wei Lai Xue) will be instituted soon. Institutes in Political Science and Law exist in various cities of China and in view of the new campaign for socialist legal system these are going to be strengthened. A bimonthly journal called *Fa Xue Yanjiu* (Studies in Law) began publication in April.

A prestigious monthly journal called Zhongguo Shehui Kexue (China's Social Sciences) has just started publication which puts together selected articles in various disciplines. Further selections from it will appear in an English quarterly in the near future. The famous historian Li Shu is the editor of the monthly.

Talking about the acute problem of finding competent research workers Wen said that the CASS has set up the Institute of Post-Graduate Studies for training researchers of which Zhou Yang was the Director and himself, Deputy Director. Each Institute under the Academy has a corresponding Department at this Institute where the scholars would get three years of specialised training in their disciplines. Researchers who join this 'Super-Institute' are university graduates who had some academic work experience prior to the Cultural Revolution.

Wen spoke from memory and the above may not be an exhaustive list of the CASS institutes. For example, we did not talk about the Institute of Nationalities. Some institutes function autonomously or under different auspices.

As for collaboration and exchange with foreign countries the CASS was looking forward to it. There has been some exchange of personnel with Japan, United States, UK and France. There were some foreign participants at the seminar on Taiping Heavenly Kingdom held at Nanjing in late May. Preparations were on for a seminar on Lu Xun, the most famous literary person of twentieth century China, in 1981, the centenary of his birth.

Our discussions confirmed that a new impetus was visible on the social science front in China. Every month we find new journals appearing in different parts of the country. In many of them alternative theories and viewpoints are presented and debated. Prefaces to new journals stress problem-related research to boost the Four Modernisations. All of them carry some articles to attack the line of the Gang of Four in that particular field. But many new topics, unexplored for years, are being researched into.

The first major CASS delegation to visit abroad went to the United States from April 16 till May 16 this year. Led by CASS Vice-Director Huan Xiang the 10-member delegation included the famous anthropologist Fei Xiaotong (author of "China's Gentry"), Qian Zhongshu, expert on Chinese literature and Law professor Rui Mo. Many channels of interaction have been worked out between the Chinese academic circles and the western universities, particularly American. There is, however, not enough indication of any significant social science contact between China and the third world countries. At a time when many of the western social science theories have lost much of their attraction in the third world it would be interesting to watch the effects of China's friendly contacts with them.

Report from China

Recent Developments in Chinese Social Science, 1977–79

George Braybrooke

In the dozen years or more since the Cultural Revolution Chinese social scientists have been through a period of relative inactivity. This is now said to have been the direct result of the interference of the "gang of four."[1] Since the disappearance of the "gang of four" in October 1976, social science has undergone a revival and social scientists are once again active.

This report outlines developments in Chinese social science since the fall of the "gang of four," and it pays particular attention to plans for future social science work.

It is in two parts. The first part presents extracts from interviews I had in Peking in July 1978 with three leading cadres from the Chinese Academy of Social Sciences. This gives some background to the second part, which presents synopses of newspaper items on major social science events since October 1976.

The Interviews

In July 1978 I talked with three senior social science cadres in Peking: Pao Cheng-ku, vice-chairman of the research co-ordination section of the Chinese Academy of Social Sciences; Hou Fang-ruo, vice-chairman of the historical research section of the Institute of Ethnology; and Sun Ch'ing, chairman of the ethnological theory section of the Institute of Ethnology. I asked them questions about the revival of social science research in China, about its nature and functions, and about the work social scientists plan to do in the future. We talked for a total of three hours at Peking University and at the Chinese Academy of Social Sciences. The following are the main points from their replies.

The Meaning of the Term "Social Science" in China. Your social science is different to ours. Its scope is not the same, the areas it covers are different. Our social science not only includes economics

1. There are countless newspaper articles to this effect, see for example Li Shu, "The 'gang of four' and social science," and Weng Tu-chien, "Grasp back the losses caused by the 'gang of four'," both in *Kuangming Daily*, 11 March 1978.

and politics, it also includes history and literature. It can also include fine arts. We put all of these together.[2]

This is because we have a different world-view, a different ideology. In our view humans have two kinds of knowledge. One kind is knowledge that has been acquired in the struggle for production, this is knowledge of things related to nature, to natural phenomena; the other kind is knowledge that has been acquired in social relations, it is knowledge of social things. These are two different kinds of knowledge, Chairman Mao has explained this.[3] The first kind of knowledge we call natural science, and it includes technology and science, the other kind we call social science, and this includes humanities.

According to your view philosophy is a social science. We often classify it as a social science, but sometimes we keep it apart. This is because philosophy does not have a connection only with social science but, since it is the basic science of human knowledge of the world, it is also connected with natural science. For example, after Liberation this institution of ours was established under the Chinese Academy of Sciences (as the Department of Philosophy and Social Sciences) but now, since it became independent last September, it is known simply as the Chinese Academy of Social Sciences, but it still includes philosophy within it.

Social science work is carried out by specialist research institutions. Each province and autonomous region has its own social science research institute. These are co-ordinated on a national basis by the Chinese Academy of Social Sciences. Social science work is also carried out by the universities, both in Peking and in the provinces.

2. The following gives an indication of the scope of social science as understood in China:

"In 1978 there were 18 research institutes under the Chinese Academy of Social Sciences covering philosophy, classical history, modern history, world history, economic theory, industrial economics, agricultural economics, world economics, finance and trade, law, Chinese literature, foreign literature, ethnology, linguistics, religion, journalism, archaeology, and information" (Mu Shih, *Peking Review*, No. 19, 1978). Later, an Institute of Research into Marxism-Leninism-Mao Tse-tung Thought and an Institute of Sociological Research were added (*Jen-min jih-pao* (*People's Daily*), 21 March and 2 April 1979).

Chairman Hua Kuo-feng, in his Report on the Work of the Government delivered to the First Session of the Fifth National People's Congress, 26 February 1978 [English version in "Documents of the First Session of the Fifth National People's Congress" (Peking: Foreign Languages Press, 1978, p. 71)], referred to the following as being part of social science: philosophy, history, economics, law, literary theory, ethnology, linguistics, religion, education, military science, and politics.

The Social Science Front, the social science journal with the broadest scope, has covered the following areas: philosophy, economics, law, history, literature, language, military science, archaeology, rural sociology, industrial sociology, psychology, calligraphy, fine arts, and librarianship.

3. See for example "On Practice."

In fact more work is done in the universities than in the specialist research institutions because the universities have both teaching and research duties. For instance, most of our economic research is done in the universities, and ethnology is strongest in the provincial universities.

The Work of Social Science. Perhaps we can talk of ethnology in particular, as an example. Ethnological survey and research work in our country is not only carried out in universities and research institutes, " behind closed doors " so to speak, but also at every level in the Party organization and the government. In order to understand ethnology or any social science in our country it is necessary to understand this about our research work: it is done under the dictatorship of the proletariat and it serves the revolution.

Immediately after the Revolution the Party did almost all the work in ethnology. Because of the need for reform, especially of Land Reform, and for the spread of socialism, certain policy decisions had to be made as to the best way to proceed. These decisions had to be based on information about the social situation in the different areas. We had to know what policy was most suitable for any particular area, but we had to know the level of its social development before we could decide. This was crucial. Take for example the Oulunch'un, they are an ethnic group who live in the north-east, they had no system of land ownership because they were hunters, the things they killed and brought back to their village were for everyone to share and eat. For these people a policy of land reform was obviously inappropriate. This was also true for the Yi, who inhabited the Liangshan Mountains of the south-west, they were found to be a slave society, the people were literally living and dying for their slave-masters. As far as these people were concerned it was not just a case of dividing up the land and giving it to the people, but primarily of freeing great numbers of slaves.

What we are saying is that policy depended on the stage of social development. The Chinese Communist Party was only able to realize the real liberation of the people in different regions by adopting different policies. Policy choices had to be made and these choices had to be based on information. There had been only very few studies of ethnic groups before Liberation and information was lacking, so the investigation, differentiation and classification of China's ethnic groups was our most important task throughout the 1950s and into the 1960s. In the early days it was done mainly by Party and government cadres, but later intellectuals were recruited to do more intensive studies.[4]

4. For western social scientists' views of Chinese social science at this time see M. Freedman, " Sociology in China: a brief survey," *The China Quarterly* (*CQ*), No. 10 (1962), and A. R. Sanchez and S. L. Wong, " On ' An interview with Chinese anthropologists ' ," *CQ*, No. 60 (1974).

Besides this question of reform we also worked for the political, economic and cultural development of the ethnic minorities. Our research workers bore this policy in mind throughout the 1950s and 1960s and paid attention to these aspects in their surveys in order to help the ethnic minorities develop and raise their standards of living as quickly as possible. This work is continuing today, and it is important work.

Another important task of ethnology is to work against discrimination. We have to oppose Great Han chauvinism. And we must oppose localism. So-called localism is in fact the chauvinism of the ethnic minorities. Therefore we emphasize the unity of the country and the equality of its ethnic groups, and we give the ethnic homelands territorial autonomy and let them manage their own affairs. In this way the contradiction between Han chauvinism and localism is reduced. It is also reduced by getting the cadres and the masses to oppose both kinds of chauvinism. This is a question of ideological education. We have to remould the thinking of the ethnic minorities and of the Hans. This requires ceaseless rectification and ceaseless education because the remoulding of people's ideology takes a long time. Consciousness is often backward with regard to changes that have already taken place in reality. This is not Old China, it is New China, yet the ideology of Old China still exists in people's minds. Because of this there are still contradictions among the people. For example, private ownership still exists, and here there are contradictions.

How can these problems be solved? Through education. We have to carry out this task together with other social scientists. Through research we can get information on the histories of the ethnic minorities, of the part they have played in the revolution. This information can be used in education.

The "Gang of Four." During the past dozen years we have suffered great damage. During these past 10 or more years the "gang of four" has wreaked havoc. A lot of work stopped, just stopped, quite simply. Why? The "gang of four" had this theory: they thought that much of our past work in social science was ideologically revisionist. They thought that the objects and principles of our research were wrong. They said that social scientists are bad people, unreformed people, people who have not been properly remoulded. This affected us a lot. Some of us were unable to work. This was very common, it occurred throughout social science. There were forbidden areas in research, questions on which social scientists did not dare to speak because they feared the big stick wielded by the "gang of four" and their people.

For example, there were large losses among ethnological institutions and their personnel. Some regional centres were dispersed.

Research workers were sent to factories. At the moment we are reversing this, people with research ability are coming back, institutions that were dispersed are being re-established. But losses have been great. A lot of material, a large amount of survey work carried out in the 1950s, has disappeared . . . sent to the paper factory to make paper!

The result was that for all practical purposes ethnological research was put to sleep. They stopped more than 10 years of work. They denied the political importance of ethnological work. This was counter-revolutionary sabotage.

Throughout the social sciences a good many of our people did not do any work during these 10 years. We have a lot of people who are now in their 70s who could have done a lot of useful work if the past 10 years had not been so ruined. As it was, many scholars spent their time in " May Seventh " Cadre Schools.[5]

The disruption caused by the " gang of four " was not just a matter of causing work to stop. They also confused people's reasoning on ideological matters. They made it difficult to differentiate right and wrong. It was difficult to decide what was ideologically sound and what was ideologically unsound. For example, should we study foreign countries, or should we not? Of course we must study them. But they said it is wrong for us to study foreign things. Should we study the past, or should we not? We said we wanted to study the past as well as the present, but they said that to study the past, to study old things, has no practical significance, no usefulness. Now all this is laughable, but at the time they confused us.

You must not think that their interference took a concrete form, like saying: " Don't drink tea! " They could not do that, they could not say: " We don't want you to do this," or: " We don't want you to do that." The problem was that they could say: " Drinking tea is ideologically wrong," and many people would believe them.

When we said that we wanted to study foreign countries they said: " That is ideologically wrong! " But of course we have to study foreign countries. For example, we have at present a major struggle confronting us, we have to struggle against modern revisionism. If we intend to confront it, then the first thing we must do is to find out what it is. Do we need to study the Soviet Union on a theoretical level? Of course we do. If we do not study it how are we going to be able to argue against it? But the " gang of four " said it was wrong, they said that to study Soviet matters is revisionist. They told us: " Your Department of Philosophy and Social Science is a rabbits' warren of feudalism, capitalism and revisionism." We could do nothing about it.

5. For the views of some Chinese social scientists at that time see G. Cooper, " An interview with Chinese anthropologists," *Current Anthropology*, No. 4 (1973).

Contact with Foreign Social Science. The "gang of four" disapproved of foreign contact, but now it is different. Now we have all kinds of contact. We often participate in international activities: for example, we plan to attend the conference on sinological research which is being held in Italy this year, and of course many people come here to see us, almost every day foreign friends come here to the academy.

If our social science is to make an effective contribution to the "four modernizations" we must have contact with foreign social science. We are very interested in what is happening abroad. Chairman Mao gave us a very good and very simple saying: "Use foreign things to benefit China." But we are still not clear about a lot of things, we still have to familiarize ourselves with them. Under our academy there is an Institute for Scientific Information, its function is to look into foreign scientific research, into its developments and its present situation, and to tell us about relevant social science research that is being carried out abroad. It holds briefing meetings and/or sends out reports.[6] We certainly do not know much about the outside world, and foreigners know even less about us than we know about them, so this work must progress, if only little by little.

The Future of Chinese Social Science. We are preparing the way for important work, we are drawing up research plans. Recently, in March this year, the Chinese Academy of Social Sciences held a conference on this matter. Each of the Research Institutes under its control is drawing up three-year and eight-year plans for the development of research projects. The three-year plans are what can be done in the immediate future, the subsequent five years will build on that.[7]

We hope this year, or if there is not enough time this year then next year, to hold a national planning conference which will not be confined to the academy. This planning conference will have three aspects: one will be the question of theory, which applies to everything; one will be history, the legacy of the past, which it is always

6. For an example of the institute's work see the three articles on futurology by one of its staff, Shen Heng-yen (*Kuang-ming Daily*, 21, 22 and 23 July 1978). The institute's Chinese name is ch'ing-pao yen-chiu so. Pao translated this into English for me as "the Institute of Scientific Information," but in *Peking Review*, No. 19 (1978), it is simply "the Institute of Information."

7. Academic and research units concerned with science and technology, culture and education all have plans to develop their work and contribute to the achievement of the "four modernizations." Individual plans are for three and eight years. The master plan covers 23 years. See Hua Kuo-feng's speech at the National Science Conference. He said: "The first eight years are the key to accomplishing the four modernizations in 23 years, that is by the year 2000. This is true also for raising the scientific and cultural level of the entire Chinese nation. We should work out plans for the next three and the next eight years, and an outline for 23 years" (*People's Daily*, 26 March 1978; *Peking Review*, No. 13, 1978). See the second part of this report for social science plans.

necessary to discuss; the other is to sum up the present situation. Theory, history, present situation – these three aspects are fundamental.

We have a lot of work to do. We have to write books. We want to complete work that has been lying around for years unfinished. There is some comparatively good stuff. Mind you, we say "comparatively good." We also want to publish the results of new research.

The most important subject is economics. At present we have many economic problems, we have a lot of questions that need working out. We have already set up economic research institutes. We have the Institute of Economic Research, the Institute of Industrial Economics, the Institute of Agricultural Economics, the Institute of Finance and Commerce, and the Institute of World Economics. The first one, the Institute of Economic Research, is the base, it does the basic theory. Right now it has a very important job: to produce in the shortest possible time a book on socialist political economy. An urgent requirement of ours is a textbook that clearly explains socialist economics. We also need books on Chinese economic history and foreign economic history. There are a lot of things we can do, but our students of political economy lack a textbook on socialist economics.[8]

This is a very urgent need. You know, at the time of the "gang of four" and their interference many ridiculous things happened in the field of economics. For instance, the "gang of four" said that if we allow the exchange of commodities on the market then we will generate capitalism. This simply is nonsense, but it had a real effect. In the countryside it stopped farmers planting some things because these things were labelled as commodities. When they planted rice or wheat it was alright, these were not labelled as commodities because they had to be handed over to the state and could not be exchanged on the market by the farmers. However, when they planted ginger or garlic, neither of which has to be handed over to the state, then naturally they wanted to exchange them on the market, but the "gang of four" said: "That's capitalism!" People believed them, the farmers would not plant these crops, and now we have only the smallest amount of garlic and ginger to eat. So this political economy book is very important.

You ask what contribution social science can make to the four modernizations. Well, we have a big part to play. For instance, for many years we have not discussed management, not any kind of management. This is a big problem and one our social science will have to solve. In the west this is a speciality, but here in China we do not have any managers, or to put it another way, we do not have anybody who manages well! Our social sciences can contribute a lot to this.

8. See the economics reading list in fn. 24 as an example of this deficiency. See *People's Daily*, 24 November 1977 and 5 April 1978 for critiques of textbooks on socialist economics published before 1977.

The last point we want to make is that we must make sure we link theory with practice. We must solve practical problems, these are the problems that matter. This means solving problems that come up in everyday life, in reality, not that are dreamed up from theories. Suppose you are a theorist or a scientist but you do not participate with the masses of the people in their work, in their life, in their struggles, then what benefit does your work have? If you are shut up in a room looking at a pile of books dealing with a very small topic, where is your usefulness? Of course, different people have different interests, but individual interests can be combined with the needs of the country when it comes to allocating research work. Each research unit has a committee to decide on the research topics of its personnel. This committee has to take into consideration what individuals want to do and what society requires to be done, and marry the two together. For example, we have a relatively old research worker who has been investigating the origin of T'ai Chi Ch'uan. Don't laugh, he and our modern physiotherapists will be able to get together. We need this sort of thing at present. We need to relate our research work to the real world. You know we have a saying in this country of ours: "Serve the People." This is what social science must try to do. To always take a proletarian stand and strive to serve the people, this must be the basis of our work.

Newspaper Reports

Although not all social science activities are reported in the national press and the following items therefore may well be untypical, nevertheless they do give an indication of the varieties of social science that have appeared during the new period of liberalization and of the kinds of issues with which Chinese social scientists are concerned.

The Chinese Academy of Social Services is Established. The first major development in Chinese social science after the fall of the "gang of four" was the setting up of an independent organization to undertake the overall co-ordination of institutions involved in the field.

Since the early 1950s this had been the function of the Department of Philosophy and Social Sciences which was a comparatively small section of the Chinese Academy of Sciences, but during 1977 the Department changed its name to the Chinese Academy of Social Sciences, broke away from its parent body, and moved its offices to a building in the east of Peking which in recent years has been used as a middle school. The Chinese Academy of Sciences is now solely concerned with natural science.[9]

9. The Chinese Academy of Social Sciences' Chinese name is chung-kuo she-hui k'e-hsueh yuan. The change of name took effect from 7 May 1977 (*Kuang-ming Daily*, 22 September 1977). This seems to have been timed to precede a report on the work of the Academy of Sciences given to the Central Committee

Social Scientists Draw up Plans for Developing Research. The future role of social science was officially defined in February 1978 when Chairman Hua, speaking at the Fifth National People's Congress, told social scientists of the contribution they would be expected to make in the drive to achieve the rapid modernization of China. He called upon them to do research work "to make a study of the past as well as the present state of Chinese and world politics, economics, military affairs and ideology," and to do ideological work "to deepen the criticism of the 'gang of four,' of revisionism and of the ideology of the bourgeoisie and other exploiting classes, and comprehensively and accurately expound and spread Marxism-Leninism-Mao Tse-tung Thought as a system." Hua told them that in order to carry out these two functions their first task must be to draw up a national development plan for social science.[10]

Early in March 1978 the Chinese Academy of Social Sciences held a four-day conference at which more than a hundred social scientists came together to work out development plans. Although much of their time was taken up with criticizing the "gang of four," each of the academy's 18 social science institutes presented three-year and eight-year research plans for discussion. The contents of the plans were not reported.[11]

During the following months brief newspaper items indicated that other more specialized conferences were being convened by the academy to discuss their plans for future research.

Late in March 200 ethnologists and cadres met in Peking. They criticized the "gang of four" and discussed the draft of an eight-year plan for the development of ethnological research. No details of the plan were given but it was reported to cover research into the languages and the histories of the ethnic minorities in China, and the study and the theory of ethnology.[12]

At the beginning of May a conference of 160 philosophy workers met in Peking. Their theme was that research questions have to stem

of the CCP on 30 May 1977, after which Chairman Hua gave "important instructions" on scientific work, which may have involved the social sciences (see Fang Yi's speech at the Fourth Chinese People's Political Consultative Conference, *Kuang-ming Daily*, 31 December 1977). In the interviews, in the first part of this report, the cadres told me the Chinese Academy of Social Sciences "became independent in September," when it moved its offices to No. 5 ch'ien kuo men wai ta chieh, tung ch'eng ch'u, Peking (two miles to the east of Tien An Men Square).

10. Hua Kuo-feng, "Report on the work of the government," delivered to the First Session of the Fifth National People's Congress, 26 February 1978. English version in *Documents of the First Session of the Fifth National People's Congress* (Peking: Foreign Languages Press, 1978), p. 71.

11. *Kuang-ming Daily* and *People's Daily*, 11 March 1978. For an English-language report on the conference see Mu Shih, "Research work in philosophy and social sciences unshackled," *Peking Review*, No. 19, 1978.

12. *People's Daily*, 27 March 1978.

from real-life problems and have to fit in with the current drive to increase production. Concrete plans were not reported.[13]

A few days later economists met at a series of regional conferences to discuss three-year and eight year plans for research. After criticizing the "gang of four" the participants initiated around 500 economic research projects with deadlines for completion. Again no details were given.[14]

At about the same time more than a 100 historians, archaeologists, and cadres met in Peking to discuss a draft plan for the development of research into ancient Chinese history. They dealt with matters concerning specialist and general histories, and popular and advanced-level histories; with research into theoretical problems and research into concrete historical problems; and with the compilation of historical data and research sources. They also reviewed the situation in China and abroad with regard to research into historical geography, Chinese economic history, the histories of the ethnic minorities of China, the history of China's foreign relations, and the history of natural science. They also discussed how work in these fields could be expedited.[15]

In mid-June 170 history workers met in Tientsin. They proposed to publish over the next eight years a variety of advanced-level books on general history, recent history and specialized histories. All would take the standpoint of Marxism-Leninism-Mao Tse-tung Thought and oppose bourgeois and revisionist views of history. The conference resolved to publish a study of the Marxist theory of history, and to start specialist research work on all aspects of history (giving emphasis to recent Chinese and world history). In order to make research easier they planned to systematically collate important data and compile handbooks of research sources. While paying particular attention to the popularization of history and the dissemination of general historical knowledge, they also planned to prepare a series of specialized conferences on historical research covering 30 topics which will include modern Chinese history, the Ch'ing period, Mongol and Yuan history, the history of South-east Asia, and the history of historiography.[16]

Their plans were taken a step further eight months later, in March 1979. 208 delegates met in Ch'engtu, Szechwan, to discuss problems that had arisen during the implementation of the plan. The conference decided that projects would have to be separated into urgent and non-urgent categories, resources could then be concentrated on the more important work. It was decided that priority would be given to research on Marxist historical theory, Hsia history, Ch'ing history,

13. *Ibid.* 24 May 1978.
14. *Ibid.*
15. *Ibid.*
16. *Ibid.*, 15 July 1978.

the history of the border regions, the history of China's relations with foreign countries, modern economic history, political history, cultural history, military history, and work on historically important archives, dictionaries and encyclopaedias.

The conference also discussed setting up historical research societies to cover specific topics in Chinese history. Historical research societies had already been established to co-ordinate research into the Taiping Heavenly Kingdom, the 1911 Revolution, relations between China and Russia, and the Shu (ancient Szechwan) kingdom. The conference decided to create societies to deal with research into the Sui and T'ang period, the Ch'ing period, the Northern Warlords, and the history of modern Chinese Thought. During the conference delegates heard reports on the current state of research into the history of China's relations with foreign countries, the history of China's ethnic minorities, the role of peasant rebellions in history, and military history. There was also a discussion on theoretical questions involved in the acceleration of China's historical development.[17]

Meanwhile, by autumn 1978 the eight-year plan for developing research into the social sciences had been drawn up in draft form. The Chinese Academy of Social Sciences and the Ministry of Education jointly convened a conference in October 1978 to discuss its final form. The 200 delegates agreed that in order to contribute to the early realization of the four modernizations social scientists must work to arm the cadres and the people for the struggle ahead by studying the new situation and the new problems that arise from it and putting forward useful ideas and opinions, and by using Marxism-Leninism-Mao Tse-tung Thought to clarify the ideological muddles caused by the "gang of four." Delegates agreed that social science research work must be based on Marxism-Leninism-Mao Tse-tung Thought and the philosophies of dialectical materialism and historical materialism, must seek the truth from the facts, relate theory to practice, crystallize the wisdom and creativity of the people, foster socialist democracy, and carry out the policy of letting a hundred flowers blossom and a hundred schools of thought contend.

The conference emphasized the important function of social science in China. If the revolution is to develop along the right lines and achieve final victory it must necessarily be based on Marxist social science. Only by studying the theory of revolution and the political, economic and military sciences of revolution, and using them to work out revolutionary strategies and policies, had the country been able to achieve the democratic revolution and the whole series of socialist victories of the 1950s. Recently the "gang of four" have succeeded in blocking the course of these continuing victories by interfering with philosophy, political economy and scientific socialism, by corrupting Marxism-Leninism-Mao Tse-tung Thought, and by clouding

17. *Kuang-ming Daily*, 7 April 1979.

theory and confusing people's minds. But the conference resolved that this would not last for long: delegates will quickly rid themselves of any lingering traces of the influence of the "gang of four" and unsparingly work for the achievement of the four modernizations.

The conference called upon social scientists to carry out a systematic investigation of the situation in China. Scattered research units will be brought under the leadership of the centre in order to organize research on a comprehensive and rational basis. Priority will be given to topics that contribute to the modernization of the country. These topics include the study of the economic, political, cultural and social situation abroad, the monitoring of social science projects in other countries, and the collecting and translating of foreign publications and research materials. The conference also dealt with the recruitment and training of additional social scientists, and with the publishing of social science teaching materials (including an encyclopaedia to be produced in collaboration with natural scientists).[18]

In early 1979, 60 leading sociology workers gathered at a national conference in Peking to discuss the revival of sociology. While accepting that the teachings of Marx on historical materialism provide Chinese researchers studying social life, social phenomena and social development with their basic viewpoint, theory and method, the delegates argued that in fact historical materialism has not and cannot replace every kind of social science since all social science (including sociology) needs specialist study. Those people who had over the past 25 years denied that sociology is a science were wrong, in the view of the delegates sociological research is an essential requirement for the success of the current policy towards science and towards the "four modernizations."

On this basis the conference set up a Sociological Research Society in Peking, and announced the establishment of an Institute of Sociological Research under the Chinese Academy of Social Sciences. It also called upon universities to set up their own sociology departments. The conference recognized that there are numerous questions that Chinese sociology has to study, both of theory and of practice, but at the present time the most important questions relate to practice, and research into these questions would be given priority.[19]

In February 1979 a conference was held in K'unming, Yunnan, to outline the five-year plan for the development of research into religion. Delegates discussed the scope and future tasks of theological research in China, and action that was to be taken. They defined Marxist theology as the science which studies the laws of the birth, development and withering away of religious beliefs; the history and current state of the various denominations and creeds of world

18. *Kuang-ming Daily*, 4 November 1978.
19. *People's Daily*, 21 March 1979.

religions; the role of religion in the history of society; and atheism and the question of a proletarian policy towards religion. The Chinese Theological Society was set up to promote research into these questions. The delegates agreed that the development of research into religion is important for China because it would help the achievement of the four modernizations by liberating thought from the theocratic dictatorship practised by the "gang of four" and by dispelling superstition and promoting science. It was also said that by revealing the objective laws of the occurrence, development and disappearance of religion as analysed by Marxist theology, it would help the Party's policy towards religion which is to unite with believers among the masses and with patriotic personages in the religious field in order to strengthen the united front and the stability of the political situation. It would also contribute to studies of philosophy and literature in the history of the world and to the understanding of other countries and their religions, thereby strengthening the unity of the world. During the conference delegates heard papers on the origins of Buddhism, the similarities between Buddhism and Confucianism, the history of Islam, on Jesus as an historical figure, the source of Christianity's theology, the influence of Lamaism on Tibetan culture, and on the way in which Tsarist hegemonism used the Eastern Orthodox Church.[20]

At around the same time 130 delegates from higher education, literature research units and publishing houses attended a national conference on the plan to develop research into literature, also in K'unming. They stressed the need to develop the study of literature in line with the four modernizations and to liberate themselves from the mental restrictions imposed by the "gang of four." Many delegates thought that the most important problem facing literature workers at the time was this question of the lingering influence of the "gang of four." They felt it can only be overcome by implementing the policy of letting a hundred flowers blossom and a hundred schools of thought contend. This meant first, maintaining the system of law and giving academics and creative writers protection from being arbitrarily branded as criminals; second, encouraging academics and creative writers to open up discussion and constructive criticism; third, dispelling the idea that "leaders know best," lessening the authority of amateurs over experts, and letting everyone have equal voice on academic questions; fourth, by publishing more books and journals representing different points of view. While the conference urged that the number of books and publications in circulation be increased, they emphasized that bookism should still be opposed, and that theory must be based on Marxism-Leninism-Mao Tse-tung Thought and should address questions that spring from reality, such as: how can Mao Tse-tung's thoughts on literature and art be

20. *Kuang-ming Daily*, 22 March 1979.

systematically and accurately explained? What are the characteristics of socialist literature and art? What are the characteristics of revisionism in the arts? How has literature been used to build up personality cults and to expose them? How have revolutionary realism and revolutionary romanticism been used? How can down-to-earth masses-oriented popular literature be developed? [21]

Social Science Periodicals Reappear. During the first half of 1978 social science periodicals reappeared in bookshops and on library shelves after an absence of more than a decade. Journals published by the social science presses of the big universities like Peking and Shanghai, and publications affiliated to the Chinese Academy of Social Sciences (*Philosophical Research, Economic Research, Literary Comment, Chinese Language*) were revived after ceasing publication during the Cultural Revolution. *Historical Research* had already resumed publication.

It was reported that moves to republish these periodicals had been approved by Chairman Mao and Premier Chou as early as 1973, but the " gang of four " had successfully resisted them.[22]

By the end of 1978 *World Economics, World History, World Literature, Chinese Historical Research, History, Minority Languages,* and *Dialectics* had also appeared.

A new quarterly journal *The Social Science Front,* which contained colour illustrations, 350 pages and over half a million characters in each issue, was first published on 1 May 1978 by the Kirin Research Institute of Philosophy and Social Science and the Kirin Philosophy and Social Science Research Federation. In March 1979 another provincial centre of social science, the Szechwan Academy of Social Science Research, launched a bi-monthly *Social Science Research.*

Institute for Research Students is Set Up. In early summer 1978 the Chinese Academy of Social Sciences recruited students for places in its new Institute for Research Students. The enrolment requirements were published in the press.[23]

The maximum age of candidates was 35 years. They had to have a university degree in arts or sciences, "good political ideology," detailed knowledge of their speciality, reading ability in a foreign language (English, French, Russian, German, or Japanese, in most cases, but other languages acceptable in special cases), good research ability, and good health. "Suitable applicants" were said to be advanced workers, poor/lower/middle peasants, educated youth, working researchers, teachers, and " other workers."

21. *Ibid.* 30 March 1979.
22. *Ibid.* 22 September 1977; and *People's Daily,* 18 December 1977.
23. *People's Daily,* 18 May 1978.

Candidates were required to sit an entrance examination. This gave equal weight to four sections: the fundamentals of the candidate's subject; his or her speciality within it; a foreign language; and political knowledge. The contents of the first three sections varied with the candidate's speciality,[24] but the political section was the same for all candidates. The purpose of the political examination was said to be to test the candidate's understanding of Marxism-Leninism, Chairman Mao's theory of the Chinese Revolution, and present day issues in domestic and international political struggles.

The Institute for Research Students was formally opened in October 1978. It had 12 departments (philosophy, economics, industrial economics, world economics, literature, foreign literature, history, linguistics, ethnology, law, world religions, and journalism) and 106 specialities. The first intake was of 400 students and they will follow a three-year course consisting of two years' class study and one year's thesis work.[25]

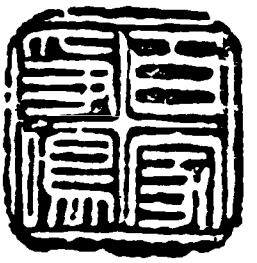
24. Reading lists on which the first sections of the examinations in economics and world economics were to be based were published in the press (all are in Chinese, translated titles are given here). See *People's Daily*, 18 March 1978.

Economics: "Capital" and "Critique of the Gotha Programme," K. Marx; "Anti-Duhring" and "On Authority," F. Engels; "Imperialism is the Highest Stage of Capitalism" and "The State and Revolution," V. I. Lenin; "Questions on the Socialist Economy of the Soviet Union," J. Stalin; "The Selected Works of Mao Tse-tung," Vols. 1–5; "Political Economy (Capitalism Section)," Hu Kuang-yun and Su Hsing; "Dialectical Materialism and Historical Materialism," Ai Ssu-chi (ed.); "Chinese History Papers," Kuo Mo-jo (ed.), Vol. 4; "Modern History of China," Fan Wen-lan (ed.), Vol. 1.

World Economics: "Capital," K. Marx; "Imperialism is the Highest Stage of Capitalism," V. I. Lenin; "Questions on the Socialist Economy of the Soviet Union," J. Stalin; "The Selected Works of Mao Tse-tung," Vols. 1–5; "Chairman Mao's Theory of the Differentiation of the Three Worlds is a Great Contribution to Marxism-Leninism," the People's Daily editorial group; ". . . and other world economics, international trade, and international finance publications."

25. *Kuang-ming Daily*, 14 October 1978.

Social Sciences: A Hundred Schools Of Thought Contend



by Zhang Wen

The policy of "letting a hundred flowers blossom and a hundred schools of thought contend" ("Two Hundreds" policy for short) is being stressed and implemented once more after the fall of the "gang of four." Of late, there have been lively, free discussions by people with diverse views in Chinese academic circles.

The article by Zhang Wen, a Marxist theoretician, gives a general idea of the policy and a look into how the policy was implemented in the past and how it is being implemented now. The other three articles deal with some problems currently debated by Chinese economists and historians. — Ed.

THE policy of "letting a hundred flowers blossom and a hundred schools of thought contend" is a basic and long-term policy of the Party and state to develop science and the arts.

In 1956, the socialist transformation of the system of ownership of the means of production was in the main completed and the large-scale and turbulent class struggles of the masses characteristic of the previous revolutionary periods had in the main come to an end. The question of how to correctly handle the contradictions among the people had become a more important issue than ever. "Our basic task has changed from unfettering the productive forces to protecting and expanding them in the context of the new relations of production." (Mao Zedong: *On the Correct Handling of Contradictions Among the People*, 1957.) A pressing task confronting us then was to rapidly develop science and culture in the light of the specific situation. Summing up historical experiences and analysing the contradictions in socialist society, Comrade Mao Zedong on this basis put forth the policy of "letting a hundred flowers blossom and a hundred schools of thought contend." The essence of this policy was to bring socialist democracy into full play so as to mobilize all positive factors, promote the development of science and the arts in conformity with their objective laws of development, so that they better serve the cause of socialism.

Democracy and Free Discussions

Comrade Mao Zedong used "open wide" to explain the "Two Hundreds" policy. He said: "To 'open wide' means to let all people express their opinions freely, so that they dare to speak, dare to criticize and dare to debate; it means not being afraid of wrong views or anything poisonous; it means to encourage argument and criticism among people holding different views, allowing freedom both for criticism and for counter-criticism; it means not coercing people with wrong views into submission but convincing them by reasoning." (*Speech at the Chinese Communist Party's National Conference on Propaganda Work*, 1957.) That is to say, under the leadership of the proletarian political party, socialist democracy should be brought into full play and solutions found to various problems in science and the arts through free discussions. Science and culture should be developed in line with the objective laws of development and by taking into consideration their special features. Different forms and styles in the arts should be developed freely, and in science, different schools of thought should be allowed to contend. Permitting only one school of thought to the exclusion of others through administrative measures should be opposed. This basic principle is also applicable to philosophy and social sciences. People should be encouraged to be bold and creative in research to push the development of science.

Since those who work in the scientific and cultural spheres are engaged in intellectual

Letting a Hundred Schools of Thought Contend

This refers to contending by different schools in the academic field. During the Spring and Autumn and the Warring States Periods (5th-3rd Century B.C.), the transition from slave society to feudal society and the class struggle were reflected ideologically in the emergence of different schools of thought. Each school had its own teachings and writings and each had its own followers. There were lively and heated debates among different schools and this became known as "the contending of a hundred schools." The chief schools and their exponents were: Confucianism (Confucius and Mencius). Taoism (Lao Zi and Zhuang Zi), Mohism (Mo Zi), Legalism (Han Fei), and School of Names (Gongsun Long). There were also a number of minor schools such as the Yinyang, and Zhongheng Schools, School of Agriculturists and Miscellaneous School.

production and creative labour, it is particularly necessary for them to do some independent thinking, pool the wisdom of the masses, promote democracy and hold free discussions. Without democracy, there can be no science. Science and culture cannot develop without free discussion. As everyone knows, when a scientist or a cultural worker is probing, investigating and giving expression to the inner law of development of the objective world, he travels a tortuous path before he finally comes to know the truth, because he is limited by subjective and objective conditions and because the objective thing can be known only after a process of gradual exposure and gradual development. More often than not, errors are unavoidable due to complicated subjective and objective factors. To decide whether an understanding is right or wrong, a literary or art work is beneficial or harmful to the people, the specific historical conditions must be taken into consideration, and judgment itself requires time. Comrade Mao Zedong said, even under socialism, newborn things may be smothered and a correct understanding may be taken as wrong through failing to see the things for what they are. Therefore, the questions of right and wrong in science can only be solved through free discussion and practice, and should not be settled by simple, crude methods. All attempts to use administrative orders or "the will of superiors" to settle questions of right and wrong in science are not only ineffective but definitely harmful.

Implementation of the "Two Hundreds" policy will allow people to air their views freely and permit each to hold diverse opinions and views in exploring and studying various scientific subjects. People will be able to make comparisons and distinguish right from wrong. In science, if only one kind of opinion is allowed to the exclusion of others, people will become ideologically retrogressive, stereotyped and rigid. This will definitely retard the development of science.

Experience over the years shows that even if some views in the academic sphere or in some works may be wrong, most of these mistakes belong to the category of contradictions among the people. Only a very few make use of academic writings to carry on counter-revolutionary activities. The re-writing of history to attack by innuendo employed by the "gang of four" is one instance. Under the pretext of appraising a historical incident or a historical personage (such as the criticism of Confucius), they attacked the Party Central Committee and veteran proletarian revolutionaries with the intention of usurping supreme Party and state power. This re-writing of history falls within the category of contradictions between the enemy and ourselves.

A Brief Review

Practice over the past 20 years shows that the "Two Hundreds" policy has played a tremendous role.

First of all, this policy enhanced the dissemination of Marxist philosophy and social sciences and greatly strengthened the leading and guiding role of Marxism in the sphere of ideology. By providing a guideline, this policy clarified to scientific and cultural workers the orientation of scientific and artistic development; and through practice they acquired step by step the ability to conduct research with a method consonant with the law of development of science.

This policy also led them to understand that questions of right and wrong in science can be settled correctly only through free discussion and social practice, and that it is of the utmost im-

portance to give full play to socialist democracy if science is to develop.

This explains the fact that, between 1966 and 1976 when Lin Biao and the "gang of four" openly dumped the "Two Hundreds" policy and clamped down a feudal and fascist cultural autocracy, the masses of scientific and cultural workers resisted and fought their perverse measures in different ways.

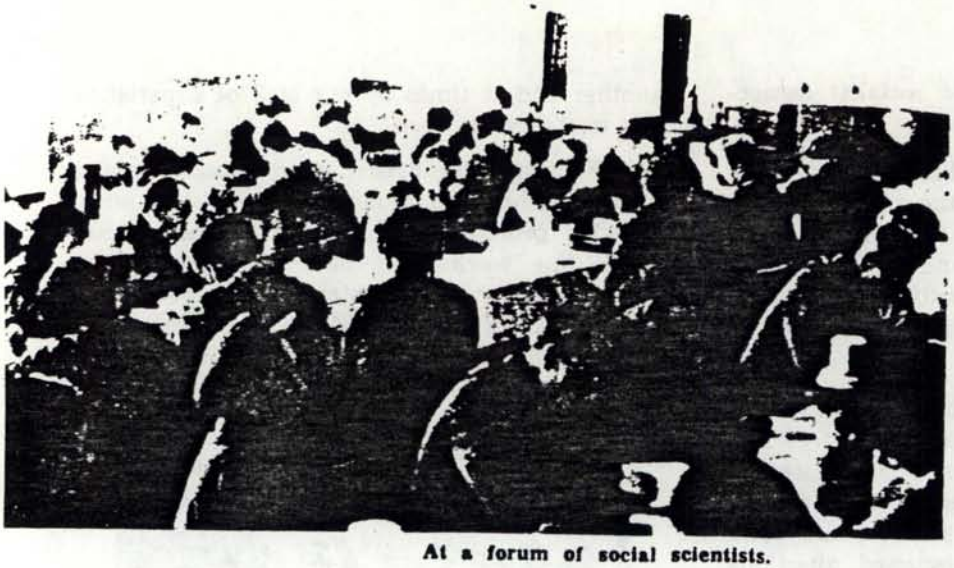
Secondly, during the period from the founding of New China to 1966, there were free discussions in academic circles and theoretical problems were actively debated. Inspired by the "Two Hundreds" policy, philosophers and social scientists constantly discussed questions of both immediate and theoretical significance, questions such as: the high-speed and proportionate development of the national economy, commodity production and the law of value under the socialist system, some fundamental issues in philosophy, the unity and struggle of contradictions, contradictions in socialist society, formal logic, problems related to aesthetics, division of periods in ancient Chinese history and appraisal of historical personages. The lively debates greatly spurred academic research, and research in philosophy and social sciences reached new heights, thereby greatly contributing to the building up and training of a specialized theoretical contingent.

Thirdly, under the guidance of the "Two Hundreds" policy, there were outstanding achievements in philosophical and social scientific research from the 1950s to the mid-1960s. With the advocacy for academic democracy, debates in science and culture were deep-going and broad in scope. Many academic organizations were set up and periodicals published. The state and local publishing houses collected, arranged, annotated and published a number of fine classical Chinese works, and translated a number of important foreign works. The philosophers and social scientists, applying a Marxist stand and viewpoint, turned out a number of academic works, most of which were good or fairly good, or of reference value. Some were of a fairly high standard and of great academic value.

On the other hand, implementation of the "Two Hundreds" policy in the past 20 years involved complicated struggles. During these years some negative phenomena emerged, some of them of a very grave nature. The thorough implementation of the policy was hampered sometimes by interference from one quarter or another and at times by our lack of experience and mistakes in work.

"Letting a hundred flowers blossom and a hundred schools of thought contend" is a well-founded proletarian policy. Truth and falsehood, fine works and bad, are opposites of unity and of the two contradictory aspects, one is always the principal and the other secondary. In a socialist country like ours, we must see to it that fine, Marxist works dominate inside

Many social science journals have been published since the overthrow of the "gang of four."



At a forum of social scientists.

the Party and in the spheres of ideology and culture. Bad, anti-Marxist works must be subjugated. Letting a hundred schools of thought contend permits the criticism of Marxism. It is our firm belief that Marxism cannot be defeated by any criticism and that truth develops only in the struggle against falsehood.

In 1957, a handful of bourgeois Rightists cashed in on our advocating the "Two Hundreds" policy and mounted an attack on the Party and socialism. It was entirely necessary for the Party to lead the people in beating back the Rightists. The target of the counterattack, however, was magnified owing to an overestimation of the gravity of the class struggle at that time, and many innocent people were wrongly charged and persecuted, which led to negative consequences and many people had doubts and misgivings about the "Two Hundreds" policy. This adversely affected the thorough implementation of the policy.

Then in 1959, Chen Boda, with an ulterior motive, came out with "combat the Right deviationist trend" and called for hauling down "the white flags of truce to the bourgeoisie" in the scientific and cultural circles. In actual fact, he was introducing in an unbridled way ultra-"Leftism" and attacking the proletariat. This, too, struck at many intellectuals and hurt their ardour for socialism.

In 1961, in a talk to participants in a forum on literary and art work and a conference on scenario writing, Comrade Zhou Enlai, in expounding the consistent ideas of Comrade Mao Zedong, emphasized the necessity of giving full scope to democracy and of engaging in mental production in compliance with objective laws. The following year, Chairman Mao in his important *Talk at an Enlarged Working Conference Convened by the Central Committee of the Communist Party of China* underscored the paramount importance of giving broad scope to socialist democracy. Inspired by these talks and thanks to the efforts to bring democracy into full play and to let people speak up, a lively atmosphere returned to the Chinese scientific and cultural world. But because of the interference and influence of an ultra-"Left" tendency, negative phenomena arose once again in the academic world. People were wilfully attacked and labelled and the big stick was used freely in academic discussions. In the mid-1960s there were lively debates over such controversial issues as the "spirit of our times," general and individual characters in literature and art and the appraisal of Li Xiucheng (one of the Taiping Heavenly Kingdom leaders). These issues should and could have been solved through free discussion and free inquiry. Only thus can truth be distinguished from falsehood and can science and culture flourish. But for ulterior motives, Yao Wenyuan, Qi Benyu and other self-styled cultural pundits arbitrarily labelled and bludgeoned anyone who held views different from theirs. They purposely confounded academic issues with political problems and equated political problems with contradictions between the enemy and ourselves, crushed academic democracy underfoot and stifled all free airing of views. This severely affected the implementation of the "Two Hundreds" policy.

Academic and political problems in the sphere of social sciences are intimately connected, but the two, in the final analysis, are not one and the same thing. The discussions on the general and individual characters in literature and art and the appraisal of such historical figures as Li Xiucheng, for example, are entirely academic, theoretical questions in social sciences. But Yao Wenyuan, Qi Benyu and others accused all who spoke about individual characters in literature and art of advocating the "theory of human nature" and of being "revisionist," and they charged anyone speaking positively of Li Xiucheng with "reversing the verdict on a renegade" and so on. Any opinion which they considered varied with theirs became a political

issue and was a contradiction between the enemy and ourselves. That made free discussion and contention impossible.

During the Great Cultural Revolution, Lin Biao and the "gang of four" crudely trampled the "Two Hundreds" policy underfoot and imposed a fascist dictatorship on the intellectuals. They proclaimed that everything should be done in compliance with "what Jiang Qing says," and forbade any mention of "letting a hundred schools of thought contend." They went all out to wreck socialist science and culture. They dismantled scientific research institutes, banned numerous books and disintegrated the contingent of scientific and cultural workers. A dreary situation prevailed over the Chinese academic world and the flowers in the garden of socialist literature and art withered. Lin Biao and the gang's perversities not only drove the national economy to the brink of collapse but also brought disaster to socialist cultural and scientific undertakings.

A New Beginning

With the toppling of the "gang of four," we have completely eliminated the scourge which had done so much to wreck the "Two Hundreds" policy and Chinese science and culture. Through the struggle over the last two years and more to expose and criticize Lin Biao and the "gang of four," we have uncovered and repudiated their crimes and cleared up the confusion they had created concerning the "Two Hundreds" policy. The policy is now being stressed and implemented anew. With both positive and negative experience behind them, the people now have a more profound understanding of the "Two Hundreds" policy.

Article 14 of the new Constitution adopted by the Fifth National People's Congress decrees: "The state applies the policy of 'letting a hundred flowers blossom and a hundred schools of thought contend' so as to promote the development of the arts and sciences and bring about a flourishing socialist culture." Thus it can be seen that the "Two Hundreds" policy forms an important part of China's fundamental law governing all spheres of work. The importance of adhering to the materialist ideological line and of giving full scope to democracy is reiterated in the Communique of the Third Plenary Session of the 11th Party Central Committee and has the backing of the entire Party membership and the people of China. This provides an important guarantee for the implementation of the "Two Hundreds" policy in the new period.

Prof. Yang Kun (left) of the Nationalities Research Institute chatting with Prof. Li Jinghan of the People's University of China at a meeting.

With the promotion of socialist democracy and the strengthening of the socialist legal system, Chinese academic circles are stirring into life again. Academic discussions are under way again, with different viewpoints contending in a normal manner. Many academic writings making deep forages into formerly "banned topics" have appeared. Over the past two years people have been delighted to see scholarly associations and learned societies rapidly rehabilitated and academic journals resume publication after being suspended for many years and more new ones started. A contingent of scientific and cultural workers is being built up again. It is worth noting, too, that in our effort to attain the goal of the four modernizations and promote friendly intercourse between the people of China and the rest of the world, domestic and international academic interchanges have been started and will grow with each passing day.

Activities carried out in recent years in the theoretical and academic fields are inseparably linked with the central task of realizing the four modernizations and with the current struggle to eliminate the noxious influence of Lin Biao

and the "gang of four." They are playing quite a positive role which can be seen in the discussions on the question of practice being the sole criterion for testing truth, on whether truth has a class nature, on questions of economic laws (the law of value included) and of how to evaluate certain historical figures. Discussions centring on practice being the sole criterion for testing truth, in particular, were highly appraised by the Third Plenary Session of the 11th Party Central Committee.

The implementation of the "Two Hundreds" policy guaranteed by the new Constitution has got off to a good start in academic circles. But there is still a long way to go before a really flourishing situation is brought about. As the evil influence of the cultural autocracy imposed by Lin Biao and the "gang of four" cannot be eradicated overnight and the socialist democratic way of doing things has yet to be applied on a broader scale, there still exists the practice that some people treat scientific works in a downright crude, simplistic manner. In some places, the "will of the superior" is taken as the criterion for judging whether a work is good or bad and the masses' opinions are ignored. More work will have to be done before problems like these can be solved. But the biggest obstacle put up by Lin Biao and the "gang of four" in the way of our scientific and cultural development has been removed. On the new Long March towards socialist modernization, the Chinese people will develop an effulgent science and culture.

The American Rural Small-Scale Industry Delegation (Dwight Perkins, Chairman), *Rural Small-Scale Industry in the People's Republic of China,* University of California, 296 pp., US$15.00.

The volume consists of a report on rural small-scale industry in China by a delegation of American scholars and technologists working in the fields of economics, sociology, engineering (farm machinery), chemical fertilizer, cement, and history, who visited China for four weeks during June-July 1975. The trip was part of the exchange program between the Committee on Scholarly Communication with the People's Republic of China and the Chinese Scientific and Technical Association. The Committee is jointly sponsored by the American Council of Learned Societies, the National Academy of Sciences, and the Social Science Research Council.

The Rural Small-Scale Industrial Delegation was the guest of China's Scientific and Technical Association and of the Chinese People's Institute of Foreign Affairs. Dwight Perkins, professor of economics at Harvard University, wrote the introduction and conclusion to this volume and had overall editorial responsibility for it. Seven of the twelve-man delegation spoke and read Chinese with varying degrees of skill.

The delegation's observations — perhaps the most extensive look by Westerners at small-scale industry in China — range from analyses of the economic and engineering efficiency of small-scale industries through worker incentives and the impact of small-scale industry on society. Basing their observations on visits to 50 factories and 10 communes, the delegation notes that rural small-scale industry is regarded as an interim step in the modernization of industrial China. These industries use more "indigenous" than "modern" technology, are smaller in scale (from under 50 to around 600 employees), and are largely designed to serve agricultural production.

What is clear is that these enterprises are continually in the process of change. In many of them, for example, the scale and the ratio of modern to indigenous technologies are both steadily on the rise. Moreover, the delegation reports, even the goal of serving agriculture has not always enjoyed the preeminence that it does today. The day may come again when subcontracting for urban factories might receive a higher priority in the program. That possibility notwithstanding, Chinese officials still express the belief that rural, small-scale industry encourages local self-reliance better than urban, large-scale industry and does a better job of supporting agriculture, both high priority goals. While the volume is not the definitive statement on rural small-scale industry in China, it provides a fairly broad base for further investigation.

Suttmeier, Richard P., *Research and Revolution: Science Policy and Societal Change in China,* Lexington, 1974, 188 pp., US$15.00.

In research and development, China is relatively one of the world's big spenders and stands in a category of her own among low-income countries. She has committed an estimated 1.1 per cent of her gross national produce to research and development, and perhaps as much as 15 per cent of her government expenditures to science-related activities. These are some of the points made by Richard Suttmeier in this interpretive summary of Communist Chinese science and technology policies and programs. The study indicates that China has given serious attention to making her economic milieu innovation-oriented and to linking research with production.

The author examines in some detail Chinese efforts at building a differentiated system of science-related institutions. Organizational change, he shows, is a prerequisite for the establishment of an indigenous research tradition by any developing country.

Communist China has from the onset stressed the importance of science and technology. The aim, Suttmeier notes, is not only to achieve economic and military strength but, more importantly, to transform the Chinese society into one which is made up of producers positively oriented towards innovation, and one in which the methods and spirit of science would be pervasive. This the author regards as the truly unique aspect of the Chinese experience.

Suttmeier is quick to note that Communist China has not found a magic formula for making science and technology relevant for her needs, but suggests that "Communist Chinese efforts to achieve a high degree of integration of science, technology, production, societal change, ideology, and even morality will continue to have developmental consequences for the remainder of the twentieth century."

While some elements of the Chinese model have potential applicability elsewhere, Suttmeier concludes that much of the Chinese experience is not readily exportable since it is based on rather unique mobilization techniques and a series of competing models with linkages to science-related programs.

Education

The basic problems of Chinese education have been shortage of trained teachers and facilities, rapid population growth, political turmoil and the need to achieve a balance between mass and selective higher education. Educationalists prevailed over ideologists in the early years, but the Great Leap Forward in 1958 brought a reversal. The Sino-Soviet split in 1961 underlined the need for scientists and technologists but by 1964 the ideologists again took control and their outlook culminated in the Cultural Revolution. Teachers were criticized for concentrating on examinations and higher education was besmirched for being in the hands of 'bourgeois intellectuals'. During the period from roughly 1964 up to 1978, education was severely disrupted at all levels and for long periods no schooling at all was available. Universities closed down, as did some libraries for a time. The few classes that were open were worker-peasant oriented on the part-work part-study principle. The basis of education was to 'serve the people' and propagate Mao's thinking. After the death of Mao and the roundup of the 'Gang of Four' led by Chiang ching, Mao's wife, education returned once again to the merit basis. Universities are being remodelled, examinations have been introduced and degrees granted. Emphasis is now on modernization and science education. Education in China has thus swung back and forth like a pendulum since 1949.

Higher Education in China: Key Institutions

Comprehensive Universities: (Science and Liberal Arts)

Beijing University
Fudan University, Shanghai
Kirin University, Changchun
Nankai University, Tianjin (Tsentsin)
Nanjing University
Wuhan University
Zhongshan University, Guangzhou (Canton)

(The following are believed to be run by provincial level governments)

Sichuan University, Chengdu
Shandong University, Jinan (Tsinan)
Lanzhou University, Lanzhou
Xiamen (Amoy) University
Yunnan University, Kunming
Northwest University, Xi'an
Xiangtan University, Xiangtan, Hunan
Xinjiang (Sinkiang) University, Urumqi
Nei Mongol (Inner Mongolia) University, Hohhot

Polytechnic Universities

(The following are administered by the Ministry of Education)

Qinghua (Tsinghua) University, Beijing
Xi'an Jiatong (Chiao-t'ung) University
Tianjin (Tientsin) University
Dalian (Talien) Engineering College
Nanjing Engineering College
Beijing Engineering College
South China Engineering College, Guangzhou
Central China Engineering College, Wuhan
Chongjing (Chungking) University
Tonji (Tung-chi) University, Shanghai

(The following institutions are of uncertain affiliation)

Changsha Engineering College (Seventh Ministry of Machine-building)
Northwest Industrial University, Xi'an (Fourth Ministry of Machine-building)
East China Engineering College, Shanghai (Fourth Ministry of Machine-building)
Harbin Industrial University (not known)
Chongjing (Chungking) Construction Engineering College

Science Universities (Under the Chinese Academy of Sciences)

Zhejiang (Chekiang University), Hangzhou
Chinese University of Science and Technology, Hefei

Machine-building Colleges (First Ministry of Machine-building)

(With the creation in 1979 of a separate Ministry of Agricultural Machinery, the agricultural machinery colleges may be under the administration of that new ministry)

Kirin Industrial University, Changchun
Northeast Heavy Machinery College, Shenyang
Hunan University, Changsha
Zhenjiang Agricultural Machinery College
Hefei Industrial University, Hefei
North China Agricultural Mechanization College, Beijing

Shipbuilding Colleges (Sixth Ministry of Machine-building)

Shanghai Jiaotong (Chiao-t'ung) University
Harbin Shipbuilding College

Aeronautics Colleges (Seventh Ministry of Machine-building)

Beijing Aeronautical Engineering College
Nanjing Aeronautical Engineering College

Electronics and Telecommunications

(Fourth Ministry of Machine-building)

Chengdu Telecommunications Engineering College
Northwest Telecommunications Engineering College, Xi'an

(Ministry of Post and Telecommunications)

Beijing Post and Telecommunications College

Light Industry (Ministry of Light Industry)

Shanghai Textile Engineering College
Northwest Light Industry College, Xi'an (?)
Hubei Construction Industry College, Wuhan

Transportation (Ministry of Communications)

Dalien Maritime College
Northern Jiaotong (Chiao-t'ung) University, Beijing
Southwest Jiaotong (Chiao-t'ung) University, Chengdu

Minirg and Metallurgy

(Ministry of Metallurgy)

Beijing Iron and Steel College
Northeast Engineering College, Shenyang
Central South Mining and Metallurgical College, Changsha

(Ministry of Coal Industry)

Sichuan Mining College, Chengdu
Fuxin Coal Mining College (Liaoning Province)

Chemical and Petroleum Engineering Colleges

(Ministry of Petroleum Industry)

East China Petroleum College, Shanghai
Beijing Chemical Engineering College
Daqing (Ta-ch'ing) Petroleum College

(Ministry of Chemical Industry)

Guangdong Chemical Engineering College, Guangzhou
Shanghai Chemical Engineering College

Electric Power (now separate Ministries of Water Conservancy and of Electric Power)

East China Water Conservancy College (Shanghai)
Wuhan Hydroelectric Power College
Hebei Electric Power College, Shijiazhuang

Geology (State Bureau of Geology)

Wuhan Geological College
Changchun Geological College

Meteorology (State Bureau of Meteorology)

Nanjing Meteorological College

Oceanography (State Bureau of Oceanography)

Shandong Oceanographic College, Qingdao

Agricultural and Forestry Colleges (Now separate ministries of Agriculture and of Forestry)

North China Agricultural University, Zhuoxian (Hebei Province)
Yunnan Forestry College, Kunming
(Kiangsi) Jiangsi Communist Labor University
Dazhai (Ta-Chai) Agricultural College

Normal Colleges

Beijing Normal College
Shanghai Normal College

Medical Colleges (Ministry of Public Health)

Beijing College of Chinese Medicine
Beijing Medical College
Shanghai No. 1 Medical College
Zhongshan (Chungshan) Medical College, Guangzhou
Sichuan Medical College, Chengdu

Miscellaneous

Beijing Foreign Languages Institute
Wuhan Surveying and Cartography College
Shanghai Foreign Languages Institute
Southwest Political and Law College, Chongqing
Beijing Foreign Trade College
Central Music College, Beijing
Beijing Physical Culture College
Central Nationalities College, Beijing

The list indicates the city in which the institution is located if it is not part of its name. We have standardized the term xueyuan *as college and* daxue *as university with the exception of the two foreign languages institutions* (xueyuan) *which have long been known in English as "institutes."*

Fudan University, Shanghai

Fudan is a comprehensive university which was founded in 1905. The university's president is mathematician Su Buqing, who is also Chairman of the Shanghai branch of the Scientific and Technical Association. Professors Tan Jiazhen, Cai Shangsi, Xie Xide, Liu Boquan, Cai Zuquan, and Zheng Ziwen are the university's vice presidents.

Faculty:	Fudan's teaching staff currently numbers around 2,100. Of these, 200 have full or associate professor status; 850 are lecturers.
Students:	Total enrollment for the 1979-80 academic year is 3,848.
Library:	Library holdings include approximately 1,650,000 books. Total holdings including newspapers and periodicals are around 2,000,000 volumes.
Departments:	The university has two faculties, liberal arts with seven departments and sciences having six departments.
Liberal Arts:	Chinese Language and Literature Foreign Languages and Literature History Philosophy Journalism Political Economy International Politics
Sciences:	Mathematics Physics Chemistry Biology Nuclear Physics Computer Science
Research Institutes:	Mathematics Genetics Modern Physics Electric Light Sources World Economics

Nanjing University

Nanjing University (Nanjing Daxue or Nanda) is a comprehensive university of arts and sciences dating from 1902. Kuang Yaming is Nanda's president; university vice presidents include Zhang De, Gao Jiyu, Zhong Shiqin, Fan Cunzhong, and Xu Fuji.

Faculty:	Nanjing's teaching staff numbers 1,651. There are 83 full professors, 69 associate professors, 839 lecturers, 44 instructors and 616 assistants.
Students:	In 1978, Nanjing had 4,115 students enrolled, including 3,683 undergraduates, 156 post graduates, 228 younger teachers, and 45 foreign students.
Library:	The library holds a total of 2,700,000 volumes. Of the 1,300,000 books in Chinese, 300,000 are rare, ancient volumes. An additional 550,000 are books in foreign languages and there are 850,000 newspapers and periodicals. Approximately 800,000 volumes are held in departmental libraries.
Departments:	Nanjing University has 14 departments, 5 in liberal arts and 9 in natural sciences.
Liberal Arts:	Chinese Language and Literature History and Archeology Philosophy Economics Foreign Languages and Literatures
Sciences:	Mathematics Computer Science Physics Chemistry Astronomy Meteorology Geology Geography Biology
Research Institutes:	Acoustics Chemistry of Complex Compounds Theory and Origin of Granite and Volcanic Rocks Environmental Science

Nankai University, Tianjin

Nankai University, alma mater of iate Premier Zhou Enlai, is a comprehensive university which was established in 1919. Yang Shixian is currently Nankai's president; Cui Ximo is the university's vice president.

Faculty:	Nankai's faculty totals 1,465, including 44 professors, 72 associate professors and 654 lecturers.
Students:	There are currently 3,600 students and 200 "research students" enrolled.
Library:	Library holdings total 1,100,000 volumes.
Departments:	The University has nine academic departments of which four are on the sciences and five in liberal arts.
Sciences:	Physics Chemistry Biology Mathematics
Liberal Arts:	History Philosophy Economics Foreign Languages Chinese
Research Institutes:	Elemento-Organic Chemistry Molecular Biology Economics Mathematics

Qinghua (Tsinghua) University, Beijing

Qinghua was founded in 1911 and is considered the foremost technical and engineering college in China, corresponding roughly with M.I.T. or a large version of Cal Tech. Liu Da is the university president, followed by vice presidents He Dongchang, Hu Jili, Zhang Guangdou, Zhang Wei and Zhang Jian.

Faculty:	There are now 180 full and associate professors. Total teaching staff, including lecturers and assistants is near 2,800.
Students:	6,200 undergraduate students are currently enrolled. Graduate students now number 600, a figure which will gradually increase.
Library:	The university library contains 1,900,000 books and subscribes to 3,000 Chinese and foreign periodicals.
Departments:	The university has 12 departments in science and engineering.

Civil Engineering and Architecture
Hydraulic Engineering
Mechanical Engineering
Precision Instruments
Thermal Energy Engineering
Electrical Engineering
Radio Electronics
Computer Science and Engineering
Automation
Engineering Physics
Chemical Engineering
Mechanical Engineering

Research Institutes:	Qinghua has restored and established nine research institutes and laboratories and is preparing to expand this number.

Zhejiang (Chekiang) University, Hangzhou

Founded in 1897, Zhejiang University is a major engineering college which has recently come under the leadership of the Chinese Academy of Sciences (CAS), a distinction shared with the Universities of Science and Technology in Hofei, Haerbin and Chengdu. Qian Sanqiang, one of the vice presidents of the CAS, is president of the university. Since Qian's duties keep him in Beijing most of the time, the university's administration is primarily in the hands of Vice President Yang Shilin.

Faculty:	Total faculty members, including full and associate professors, lecturers and assistants, number 1,819.
Students:	Enrollment for the 1979-80 academic year is 6.549. Of this total, 6,128 are undergraduate students and 421 are graduate students.
Library:	The library contains 750,000 books and about 10,000 kinds of current journal and newspapers in Chinese and other languages.
Departments:	There are currently 15 departments within the university. Mathematics Physics Chemistry Geology Mechanics Mechanical Engineering Electrical Engineering Thermal Engineering Optical Instruments Scientific Instruments Materials Science and Engineering Computer Science and Engineering Chemical Engineering Civil Engineering Electronic Engineering
Research Institutes:	Optical Instruments Chemical Engineering Electrical Engineering Materials Engineering

Education comes back into fashion in China

In the late 1950s and early 60s, China began to set up special selective schools to train the nation's top technicians and administrators. During the Cultural Revolution, these were denounced as "little treasure pagodas" and abolished. Now, as China forges ahead with plans for modernization, highly selective schools have been reintroduced under the name of "key" schools.

In no area can the almost full circle undergone by China in the years straddling the Cultural Revolution be seen more clearly than in education. The elitist tendencies of the 50s, which gave way to the egalitarian excesses of the mid-60s and 70s, have now been revived with greater fervour and conviction, though the Chinese themselves resist the term "elitist".

Academics and other intellectuals are back in favour. For 20 years between 1957, when Mao launched his anti-rightist purge, and 1977, when the Gang of Four was finally "smashed", they suffered terrible indignities and tribulations. Reviled as the "stinking ninth category" of the enemies of the people, they were humiliated, banished to work in the fields, tortured, imprisoned and murdered.

Those who survived have now been reunited with their families, their jobs have been returned, their universities reopened, and their reputations officially restored when Vice-Premier Deng Xiaoping hailed them in 1978 as the "brain workers" who serve socialism "as a part of the working class".

Universities are again able to select their own students. The competitive examination, abolished during the Cultural Revolution, was reintroduced two years ago. Previously, only peasants and workers who had been nominated by their colleagues were eligible for entry to university. No academic qualifcations were required. The quality of university intake was often very poor, and the output not much better.

Now, universities are fiercely selective, particularly the "key" universities which, like "key" schools, are allocated extra resources and the best teachers. Less than one per cent of young people in China go on to higher education, compared with 12.5 per cent in Britain, and about 40 per cent in the United States and Japan.

Only one in 20 of the 5,000,000 students who applied to university last year was awarded a place. By and large, only the very brightest get in, though the health and political attitudes of candidates may be taken into consideration together with their examination marks. And strings can sometimes be pulled.

Last September, 400 students marched through the streets of Peking in protest against the alleged admission of candidates through political connexions. It was doubtless to allay such fears that Chairman Hua announced that his own daughter had failed to get a university place.

Most of the students who now get into university come from the favoured key schools, and most of the pupils in such schools are the children of professionals and white collar workers. Key schools account for less than 1 per cent of primary schools and only 5 per cent of secondary schools. They are thus far more selective, and in that sense "elitist", than grammar schools in Britain, which catered on average for the top 20 per cent of the ability range.

Selection for key schools is by examination. Some schools are more key than others. Among 140,000 secondary schools, just 20 have been singled out for extra special treatment directly under the Ministry of Education. (Other key schools come under the provincial or municipal government.

A few are further favoured by being "attached" to the best key universities. This greatly increases the pupils' chances of success of being admitted to those universities. Of the 60 pupils in the final class of the secondary school attached to Peking University, for example, 58 have been offered places this year.

When the university entrance examinations were first brought back, it was agreed that some 20-30 per cent of students should be allowed to enter university direct from secondary school without first having to serve time in the army, in factories, or on the land. Last year, only two years after that decision was taken, two-thirds of the successful applicants came straight from school. That proportion seems likely to continue to grow.

The gulf between the intellectual and the worker, which the Cultural Revolution sought to close, is once again yawning wide. The long nail on the little finger, the traditional mark of the Chinese intellectual, is creeping back into fashion. Titles for university degrees are to be awarded next year for the first time since the Communists came to power in 1949. The Government has just decided to increase the salary differentials between academics and workers.

It was strange for some of us who arrived earlier this month in China, full of naive preconceptions about socialist egalitarianism, to hear Professor Ni Meng Hsuing, a deputy director of Peking University, speak of the "problem" of miners earning more than some senior academics.

A miner might earn 100-150 yuan a month, he said. That was double the average wage of a graduate secondary school teacher or the starting salary of a university lecturer. A lecturer required more education than a miner, and his work was more difficult and of greater value to society. So he should be paid more than a miner in accordance with the good socalist principle of "to each according to his work", he explained.

Top professors may earn up to 340 yuan a month, however, the same as Chairman Hua himself—another token of the high status accorded to academics. There is no income tax in China, so gross and take-home pay are the same. The difference in real salary levels in China is much greater than in Britain.

The social and economic gulf between the intellectual and the worker or peasant is exacerbated by the huge disparity in educational opportunities in the country, where 80 per cent of the population lives, and in the towns.

Ten years of schooling is usually provided in urban areas, while in the rural areas five years is the norm, and even that is not yet universal. Very few children in rural areas ever reach university.

China has so far shied away from the creation of elite academic schools on the Russian model. Boarding schools are provided only for children gifted in the arts, music, dance and sport; the academic key schools have to select pupils from those who live within travelling distance. There are no highly selective specialist schools in mathematics or the sciences as in Russia though there are a few foreign language schools.

Within key schools, cooperation rather than competition is stressed. Children are awarded marks for the frequent tests they are given, but their rank order is not normally paraded in public. Bright children are deliberately placed with slower learners for working in small groups. Pupils are not "streamed" or otherwise separated into classes according to their ability.

Nevertheless, China does appear to be fostering an "elitist" education system which, it would seem, must lead to the creation of a new intellectual elite. How does this square with socialist egalitarian principles? And is there not a danger that present policies could lead to conditions similar to those which helped to spark off the Cultural Revolution?

Professor Ni explained that China needed its intellectuals to help to build socialism. "We recognize the danger of a split between intellectuals and workers, but we feel that the split is one of attitude, and not one arising from a physical separation. So long as intellectuals have the right attitude and are working to build up socialism, that is all right", he said.

Mr Jiang Nanxiang, the Minister of Education, in an interview with British education correspondents in Peking earlier this month, denied that China was creating an elitist education system. The decision to establish key schools and universities arose out of a study of the economic realities in China, he said.

The 11 years of the Cultural Revolution had taken a heavy toll in education. Buildings, books and equipment had been destroyed; teachers had not been trained; academics had had to abandon their studies and research. China was a long way behind developed nations, and was anxious to catch up. Yet resources were severely restricted.

That was why the Government decided to concentrate the available resources on a small percentage of schools, so as to run at least those well. But key schools were not intended to be a permanent feature of the Chinese education system, he claimed. The Government intended to raise every school to the level of a key school. It would, however, be a long process.

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CHOU JUNG-HSIN AND CHINESE EDUCATION *by John Gardner*

On August 28, it was officially reported that a solemn meeting had been held at the Papaoshan Cemetery for Revolutionaries in Peking to pay tribute to Chou Jung-hsin (周荣鑫), Minister of Education from 1975 to 1976. Hua Kuo-feng (華國鋒) sent a wreath, and Teng Hsiao-p'ing (鄧小平) and Li Hsien-nien (李先念) were among the thousand leaders, colleagues, and friends who assembled. Deputy Premier Ku Mu (谷牧) eulogized Chou as a "fine member of the Chinese Communist Party" who had carried out "fruitful work" as minister.[1]

It was a moving occasion, given added poignancy by the fact that this was not only the first official acknowledgment of Chou Jung-hsin's death, but was the first time his name had been mentioned in the press since he attended the memorial service for Chou En-lai (周恩來) on January 15, 1976. Three months later, on April 13, Chou Jung-hsin died. At that time he was in disgrace, having been accused of launching a "right deviationist wind to reverse correct verdicts on the revolution in education," and his passing went unmarked.

His posthumous rehabilitation is important for more than "human interest" reasons, for it is abundantly clear that the policies for which he fought in 1975 constitute the basis of the educational reforms that are now being given tangible expression in China. His political influence on educational matters is, therefore, exactly analogous to that of Teng Hsiao-p'ing in the fields of industrial and scientific development.

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Chou's rehabilitation also puts another nail in the coffin of the "gang of four" and their supporters. They stand accused of having fabricated the charges against him, of hounding a sick man to an early grave, and of attempting to cover up their "criminal responsibility" by falsifying reports on the cause of his death. Ch'ih Ch'ün (遲羣), alleged to be one of the supporters of the "gang of four," has been singled out for special attention in this regard. A soldier of the 8341 Unit, Ch'ih entered academic life as the head of a propaganda team sent into Tsinghua University. As chairman of the university's Revolutionary Committee, as deputy head of the Science and Education Group (SEG) under the State Council, and subsequently as a leading member of the Ministry of Education, Ch'ih was the most important Leftist figure in educational affairs. Reportedly arrested in October 1976, he has since been reviled in many articles discussing the activities of the gang's "sinister lieutenant." Now he has been officially named.[2]

In January 1975, the Fourth National People's Congress re-established the Ministry of Education (which had ceased to function in 1967), and abolished the SEG which had exercised responsibility for education since 1971. In some respects this organizational change was of little significance, as the men who headed SEG — a mixture of veteran educational administrators like Hu Shou-hsin (胡守鑫) and radicals like Ch'ih Ch'ün — simply reappeared as "responsible persons" in the ministry. But Chou Jung-hsin's appointment as minister heralded that changes were in the offing.

A Party member since 1937, Chou had considerable experience in both education and administration. He served as principal of Chekiang University from 1959-61 and was a Deputy Minister of Education in the early 1960's. His obvious forte for administrative work brought him increasingly responsible positions in the State Council Secretariat, culminating in his formal appointment as Secretary-General in 1965. As the man in charge of the day-to-day administration of the highest organ of the State bureaucracy, he was in effect Chou En-lai's personal assistant and it is safe to assume that their relations were close and cordial.[3]

Like so many of the Premier's associates, Chou was attacked as a "capitalist roader" in 1967 and disappeared from view. Ironically, one charge made against him at the time was that he had opposed the increasing influence of Chiang Ch'ing (江青).[4] By 1973, he had joined the growing band of those "restored from obscurity" by the Premier, and began to be identified as a "leading member" of the Academy of Sciences. He was, therefore, a man likely to take a somewhat jaundiced view of the Cultural Revolution, and his appointment as Minister, obviously connected with the Premier's final attempt to launch the "four modernizations," gave him the opportunity to initiate policies that would correct the excesses of the Left in educational circles.

Due to the extreme secrecy in which Chinese officialdom conducts controversial debates and to the dominance of the media by the "gang of four," there is little in the contemporary published record to indicate that a major reform drive was underway in 1975. Most of what we know comes from the version of events given by Chou's detractors a few months later. In this particular instance,

however, we are fortunate in having access to a considerable amount of material that was never officially published, and that goes far beyond the distorted and brief snippets of his speeches that found their way into the official press. Because of this, there is no need to wait for posthumous accounts (which are now beginning to appear) to present a reasonably accurate picture of what happened in 1975, when the Minister made a number of damning observations on the educational situation and advocated reforms.[5]

The Minister's Talks[6]

Between May and October 1975, Chou Jung-hsin gave formal speeches or participated in discussions on education on at least nine major occasions, both in his ministry and at educational conferences elsewhere (see Appendix for excerpts from Chou's speeches and remarks). In these, he expressed great concern at the lack of attention given to "culture" (*wen-hua*), a term probably best translated in this context as "academic subjects" or "intellectual matters." The basic problem, he believed, was that "no one actually studies." A situation had arisen in which "when one speaks of education, one could say that it isn't worth a cigarette butt." It was, of course, correct that students put aside the notion "intellectual education in first place," but the injunction "do not study culture" must never be substituted for it. It was absurd to talk of the "four modernizations" without being willing to discuss matters of professional competence.

The "principal deviation," he said, was that theory was ignored. By 1975 the emphasis was on "practice-practice-practice" and the neglect of formal instruction had had alarming consequences, especially at the tertiary level. Chou did not reject the value of institutions for "practical" subjects such as the Ch'ao-yang Agricultural College or the "July 21" University of the Shanghai Machine Tools Plant,[7] but he questioned the general applicability of such models: they were useful in disseminating knowledge, but they were unsuitable when it came to raising standards.

In the major universities, Chou found that standards were "really low" — actually no higher than those that had been achieved in technical middle schools before 1966. On the campuses there was "no more culture, no more theory, no more scientific research." Overemphasis on practice had led to a complete reversal in the respective positions of pure and applied sciences, compared with the situation before the Cultural Revolution. Moreover, on the scientific front, he felt, "no one bothers with centers of excellence anymore." He emphasized that training people in technical skills was "not just a question of quantity, but also of quality."

The Minister also found fault with "open-door schooling" (*k'ai-men pan-hsüeh*), although his objections were more concerned with the way in which the principle was applied than with the principle itself. He ridiculed schools that had announced the intention of achieving self-sufficiency, and criticized arts faculties that made their students spend a lot of time in manual labor. He noted that in the Leftist stronghold in Liaoning of Mao Tsę-tung's (毛澤東) nephew, Mao Yüan-hsin (毛遠新), students had complained of the excessive amount of time they were required to spend in labor, pointing out that they were not workers.[8]

Enrolling university students whose "cultural level" was too low was a further manifestation of "ultra-Left" policy in Chou's eyes, as was the blanket insistence that all students spend at least two years in "productive labor" before going to university. In the case of those studying foreign languages and certain sciences, such a long break, he argued, could well be detrimental, for they would forget everything they had learned in middle school. Chou also recommended that less use be made of unqualified instructors. Peasants could certainly "mount the rostrum" to discourse on "politics and leeks," but for them to speak on the "use of litmus paper" was quite another matter.

The intrusion of politics into all aspects of the curriculum also aroused his anger. Too many people regarded political and professional competence as opposites, rather than appreciating that they were complementary and inseparable attributes of the socialist intellectual. He reminded his listeners that the correct formula was to be both "red and expert" *(yu-hung yu-chuan)*.

A further problem he identified was the serious misuse of youthful talent. Zealous rejection of the Confucian notion of "studying to become an official" had resulted in many students being assigned to menial tasks on graduation. If graduates were to be nothing more than laborers, what incentive did they have to study? For that matter, why bother to send them to university at all? China had a desperate need for technical cadres who were, of course, "officials." The correct policy, then, was to teach students to study in order to serve, rather than to "study to become rich." It was the latter that was a manifestation of capitalist ideology.

He also criticized the Ch'ao-yang policy of sending graduates back to their original work units. If generally applied this could starve other units of skilled manpower and, moreover, would result in some graduates being assigned to totally unsuitable jobs.

Chou's speeches frequently mentioned the intellectuals, who should have constituted the "natural" defenders of academic standards and rationalism in educational work, but who had become demoralized not only as a result of the upheavals of the late 1960's but because of what had happened thereafter. Despite attempts to encourage such people in 1972, the "gang of four" had mounted a campaign of further criticism in 1973 and 1974. Although only about 10 per cent of all China's teachers had been trained before 1949, many were still accused of being "bourgeois." Thus, Ch'ih Ch'ün had asserted that those who had graduated before 1966 had "basically played the role of subverting the economic base of socialism."[9]

Chou Jung-hsin condemned the tendency, prevalent among Leftist educational administrators, to criticize intellectuals at every opportunity. This was contrary to Mao's celebrated analysis of 1957, in which the Chairman had concluded that most intellectuals could and would serve the cause of socialism. In a swipe at Mao Yüan-hsin, who is known to have popularized the phrase, Chou remarked that "Chairman Mao never said that schools should be tools of the dictatorship of the proletariat."[10] Indeed, it was Mao who had said that the "revolution in education" was primarily a question of teachers, as Chou wryly observed. How could they be expected to show initiative and enthusiasm when they were continually subjected to abuse?

In attempting to identify the root cause of these problems, Chou had to speak very carefully — the post-Cultural Revolution policies had been laid down at the National Conference on Educational Work in 1971[11] with the approval of both Mao Tse-tung and Chou En-lai. He was, therefore, quick to "affirm" the achievements of the "revolution in education," and to place the blame on subsequent distortions and "interference." Although he called for a full investigation to ascertain what had gone wrong, Chou himself revealed that the fault lay with "those who administer education." Whether or not he chose to name names is unclear, but his targets obviously were such people as Ch'ih Ch'ün, Hsieh Ching-i (謝靜宜), a vice chairman of Tsinghua University, and Chou Hung-pao (周宏寶), a progapanda team worker-member at Shanghai's T'ungchi University who had become a "leading member" of the Ministry of Education.

These people were guilty of "rampant metaphysics" (extreme one-sidedness). In order to correct abuses in the old educational system they had gone too far in the opposite direction. They refused to listen to others, claimed that they "only wanted to hear the words of Chairman Mao," and distorted Mao's teachings, either because of "confusion" or malice. Like Lin Piao (林彪) before them, they claimed that the situation was excellent and launched "random attacks" on any who might disagree. Apart from being "metaphysical" they were also ignorant, and Chou urged that they give way to professionals.

Chou and the Printed Word

In the autumn, Chou wrote (or commissioned) two articles that were published in the tenth issue in 1975 of the *Bulletin of the Revolution in Education (Chiao-yü ko-ming t'ung-hsün)*. This journal, which is rarely available to foreigners, has been published since at least 1973 and appears to be the successor to *People's Education (Jen-min chiao-yü)*. Fortunately, a text of these particular articles is available.[12]

One of the articles dealt with the training of "revolutionary successors" and, amidst the usual genuflections to the Cultural Revolution, made a strong case for raising academic standards along the lines discussed above. If matters were not put right, it said, "we will inevitably retard the four modernizations, pulling them by the hindlegs." In accordance with Mao's instructions, China needed to train an "enormous contingent" of professors, teachers, researchers, journalists, literary men, artists, and Marxist theorists.[13]

The second article was particularly interesting as it was ostensibly a refutation of John Dewey, the great American pedagogue.[14] Although the author scarcely mentioned China, he was, in fact, making a thinly disguised attack on both the excessive emphasis given to practice and the campaigns to undermine the "absolute authority of the teacher," which were having a serious effect on discipline in middle schools. The article noted that capitalist societies had been faced with a dilemma. In order to obtain the maximum profit from the blood and sweat of the workers, the workers had to be taught "certain knowledge and techniques." But the bourgeoisie knew that the workers were "gunpowder" and knowledge was the "spark". Dewey's contribution to capitalism, therefore, was to provide a pedagogical justification for restricting the workers' access to education.

Dewey, according to the author, justified withholding theoretical education from the workers by arguing that only a minority — the children of the ruling class — were capable of benefiting from intellectual education. Since the majority — the children of the workers — could cope only with "limited practicalities," providing them with "pure knowledge" presented "no advantage for society." Hence, Dewey's concept of "learning by doing" was nothing but "the ideological reflection of the bourgeois fear of science and its hatred for the truth." It required only the acquisition of experience and was "opposed to the elevation of theoretical matters" in educational work.

The workers, therefore, would learn useful techniques to equip them for their role as cogs in the industrial machine, but they would never develop a greater understanding of the world around them that would serve to spark off a revolutionary explosion. Lenin, of course, had seen through this from the start as a bourgeois attempt to ensure that nothing should disturb "their peace and idleness."

Dewey's ideas poisoned the minds of the young by making them believe that "usefulness is truth" and that "book knowledge" was fundamentally opposed to practical life. Even socialist pedagogues had been contaminated. Hence, Chou was suggesting that no real socialist society would ever behave in so contemptible a manner, and his article was a tongue-in-cheek criticism of the "gang of four" approach, suggesting that they wanted a docile and malleable work force unable to resist elite manipulation.

Similarly, Dewey was charged with departing from the "correct" position of regarding teacher-student relations as a partnership in which teachers were the senior partners and were able to operate within a properly structured environment. His concern for "child-centered education" led him to advocate that it was necessary "to let the child develop freely according to its instinct and interests." Schools existed only to "arrange the atmosphere, provide the materials, and permit the free activity of the child, starting from the child's interests and special needs."

To "deceive the masses," Dewey opposed the concepts of "books at the center" and "teacher at the center." For him, the teacher was nothing but an observer and assistant. He replaced the authoritarian attitudes of earlier pedagogues with a spurious "kindness," but was equally guilty of suppression because he denied the child access to knowledge for which formal, structured teaching was essential. Dewey had likened his methods to a "Copernican Revolution" in which the educational system revolved around the child and, as Chou acidly observed, "people like Lin Piao" had used the same analogy to undermine discipline in the classroom.

The Minister was, in fact, criticizing developments since the autumn of 1973. At that time, publicity was given to several cases in which middle school students criticized their teachers' handling of school examinations and, in December, the Left launched Huang Shuai (黃帥) as a national model in "going against the tide." A Peking primary school pupil, she had been harshly treated by her teacher for criticizing him, and eventually wrote to the press. Her case was taken up by the "gang of four," who took a rare incident and used it to justify a general assault on the Confucian notion of the "absolute authority of the teacher,"

claiming that such "bourgeois suppression" was widespread.

In fact, there was already a problem of school discipline at this time. Among the factors responsible for discipline problems were the increased numbers of middle school students drawn from "good" class backgrounds, a number of whom were cadres' children; the lack of incentive to study academic subjects because of both restricted opportunities for higher education and the constant criticism of "studying behind closed doors"; and the unwillingness of many teachers to risk accusation of "bourgeois" behavior after what they had experienced in the Cultural Revolution.[15] The campaigns built around Huang Shuai and similar cases worsened this situation and, although it must not be exaggerated, in a few schools there were cases of vandalism and hooliganism. Chou's views were, therefore, a necessary corrective.

The Minister's line on school discipline was given nationwide publicity through his adoption of the Tachai school as a "model," although it was never openly stated that he was the person responsible. An article extolling the school's virtues made a special point of emphasizing that the students, and especially cadres' children, were kept firmly in their place and that the teachers there obeyed the old proverb "strictness means love and leniency will bring harm." In contrast to the praise heaped on Huang Shuai, in Tachai it was noted that "students are likely to be capricious in their thinking" and were not automatically endowed with proletarian virtues.[16]

A "Right Deviationist Wind"

Chou's talks and writings had a marked effect on many teachers at all levels, who were elated by the new emphasis. A number spoke out in support and, it would appear, this inevitably included some who were less guarded than he had been. Chiang Nan-hsiang (蔣南翔), a former Minister of Higher Education, is alleged to have said that universities might have "college education" on their signboards, but they followed a middle school curriculum for the benefit of primary school graduates. Others began to advocate establishment of special schools to train scientists, direct entry to university for a number of students, and a return to many other "revisionist" practices of the Liu Shao-ch'i (劉少奇) era.[17]

Not surprisingly, the Left viewed this trend as anathema. As early as August 1975, Chou referred to a counter-attack by "metaphysicians," noting that one of them (presumably Ch'ih Ch'ün) wished to replace him as minister. Matters came to a head in November, when Mao returned two letters written to him by a group of academic administrators, headed by Liu Ping (劉冰), to Tsinghua University. These letters criticized Ch'ih Ch'ün for obstructing the introduction of much needed improvements.[18] Mao, however, returned them without comment and called for a great debate to resolve the issue.

The Left waited until Chou Jung-hsin was conveniently in Africa on a protocol visit, and then on November 18, Ch'ih Ch'ün launched a poster campaign against him. It began at Tsinghua and quickly spread to other campuses and to the media. An early victim was the *Bulletin of the Revolution in Education*, which published in its December 1975 issue a grovelling apology for the articles it had carried in its tenth issue. On December 20, foreign correspondents

were taken to Tsinghua to read the writing on the wall, and on December 26, Chang T'ieh-sheng (張鐵生), the Liaoning student whose "principled" resistance to entrance examinations had earned him a college place and much influence, also contributed to the attack.

In January 1976, Chou Jung-hsin's position was drastically weakened with the death of his patron Chou En-lai. In the same month commenced the campaign against Teng Hsiao-p'ing, which had a strong academic content. In the summer of 1975, Teng had played a major part in attempting to reform radically the work of the Academy of Sciences, and had personally supervised the production of a highly critical "Outline Report" on its work, which advocated the raising of standards.[19] As a leading member of the Academy, Chou had participated in this move, and was clearly associated with Teng. Although never formally removed from office, the Minister's control over educational work had probably ceased by the end of January, and the ministry fell into the hands of a "provisional leading group" led by Ch'ih Ch'ün.[20] The Left's attacks on the "right deviationist wind" continued after Chou's death in April 1976, and only ceased with the arrest of the "gang of four."

Rehabilitation and New Directions

Ch'ih Ch'ün and Hsieh Ching-i were reportedly arrested in October 1976, and other leading Leftists in education also disappeared from view at that time. In November the press began to publish articles attacking the "gang of four" for their "crimes" in education and, by the simple process of reversing the charges made against them, one could predict that changes were imminent and that the new policies would be similar, if not identical, to those advocated by Chou Jung-hsin.

It was not, however, until the late summer of 1977 that the Chinese press began both to allude to the holding of national conferences on education and to publish detailed accounts of *positive* proposals for reform. This delay was puzzling in view of the numerous and well-publicized conferences to rectify the situation in other policy arenas, and particularly because of the massive coverage given to the reform of Chinese science. As early as March, the press had indicated that the "Outline Report" was a "fragrant flower" and not a "poisonous weed," and subsequent articles made this point in increasing detail. At the same time, the press began to report with approval the convening of scientific conferences on such highly esoteric and theoretical subjects as high energy physics, a far cry from the "intermediate technology" concerns of a year before.[21] As *People's Daily* pointed out on April 3,

> Research and development in high energy physics directly or indirectly affects other academic developments, and various other branches of the national economy. Therefore, we must make even greater efforts to develop it... Science is down-to-earth knowledge.[22]

A significant feature of such conferences was the participation of many elderly scientists who had been trained abroad long before 1949, and who urged their younger colleagues to become not only "expert" but "authorities" on their subjects.[23]

The long-awaited official rehabilitation of Teng Hsiao-p'ing in July would

seem to hold the answer to the delay in taking action on the educational front.[24] As a condition for returning to public life Teng obviously insisted that the policies with which he was associated in 1975 be "rehabilitated" as well. For some months before his formal reappearance, he had in fact been directing the new drive to raise scientific standards and, from July, had assumed special responsibility for educational work as well. A national conference on education had been in progress for some time before Teng reappeared. However, because of the persecutions suffered by many intellectuals under the "gang of four," participants had played safe, confining their deliberations to the strengths and weaknesses of educational policies before 1966.

At the time of his return, Teng personally intervened. He addressed the conference and criticized the participants for their lack of courage. Pointing out that his own frankness on previous occasions had resulted in only temporary personal setbacks, he urged others to emulate it. Suitably encouraged, the educators at the conference immediately began to put forward positive proposals.

In August, a *Red Flag* article by Lin Chin-jan (林傑染) entitled "We Must Push Education Forward"[25] stated that the sabotage of educational standards by the "gang of four" had not only harmed young people but had led to a situation in which the number of qualified youngsters fell far short of the State's requirements at the time. Instead of describing schools as "tools of the dictatorship of the proletariat," it described them more prosaically as "places where qualified people are trained" and emphasized that the schools' job was to "perfect skills" needed in the building of socialism as well as to give students a "firm socialist orientation." The younger generation must be made "truly" red and expert, and this meant "taking study as the main task." Other subjects were to be learned, but the article made it clear that the amount of time given to nonacademic matters was to be circumscribed.

In a similar vein, the article treated "open-door schooling" as Chou Jung-hsin had done — it was important, but must not be regarded as a substitute for book knowledge. The author pointed out that Mao himself had recognized this, supporting his contention with the appropriate quotation:

> All real knowledge derives from direct experience. But it is impossible for one to have direct experience of everything and, in actual fact, most knowledge comes from indirect experience.

An important task for the schools was, therefore, systematically to teach students the main points of the knowledge accumulated by mankind within a fixed period of time.

What this meant was more attention to theory. Universities were to strengthen teaching and research on basic theory. The major universities, which were "geared to the needs of the whole country," were to pay full attention to raising standards. They were to run postgraduate courses and keep abreast of the latest scientific developments at home and abroad. They were also to "quicken the tempo" in building laboratories and libraries. The *Red Flag* article stressed that the question of scientific education must be given priority as early as primary school.

Although the article gave proper praise to the role of "people-run" *(min-*

pan) schools and "workers' universities," other accounts have indicated that it is the formal institutions under the control of the Ministry of Education that are regarded as having the main role to play in China's modernization. Thus, on August 29, *People's Daily* reported that a meeting of scientists, workers, and young people had been convened by the All-China Science and Technology Association at which middle school students were encouraged to study mathematics, physics, chemistry, and other basic science courses well. This meeting acknowledged that although some scientific and technical personnel came directly from production units, many others (and particularly the most advanced) had been trained in institutions of higher learning. Moreover, whatever their backgrounds, they were "invariably" influenced by the middle school and primary education they had received. Consequently, schools at this level were to do everything possible to awaken and develop scientific interest among the young.[26] A further theme emphasized in the past few months is the development of "key schools" as centers of academic excellence, which presumably are to recruit their students on the basis of high scientific ability.[27]

The new emphasis on treating intellectuals as valuable and valued members of society has also received considerable attention. The "gang of four" attacks on the "absolute authority of the teacher" have been replaced by injunctions that students must respect their teachers. Teachers in turn must make "necessary criticisms of students' wrong words or deeds and help them correct them." The revival of the campaign to emulate "Uncle" Lei Feng (雷鋒) contains the message that he "was attentive in class and never up to mischief." In the classroom there must be "revolutionary discipline."[28]

In September, *Red Flag* published an article by Chou P'ei-yüan (周培源), one of China's most distinguished scientists. In it he discussed the 1972 drive to improve the academic quality of university entrants with which he was associated. Writing of the attempt then made to recruit more students in science, engineering, and foreign languages directly from middle schools, he observed that this was initiated by Premier Chou En-lai in accordance with Mao's wishes, and was "correct."[29]

Articles have since appeared on a recently held national conference on university enrollment work, which have set out the new policies in some detail.[30] First, it is clear that the net is being cast as widely as possible. Workers, peasants, educated youths in the countryside, demobilized armymen, and cadres are eligible to apply. These people have naturally satisfied the requirement to have work experience before going to university, which has been a standard feature of admissions policy since the Cultural Revolution. But those who have just graduated from senior middle schools are also invited to apply as are, moreover, outstanding school students who have yet to graduate. Another interesting group, specifically mentioned, is those 1966 and 1967 senior middle school graduates who therefore received their formal schooling in the days of the "Liu Shao-ch'i line" (which, it is now inferred, was in no way as bad as the "gang of four" sought to make out), and who had their university education interrupted by the Cultural Revolution. For these applicants, the age "ceiling" of 25 has been raised to 30, and the requirement that students be unmarried has been waived.

Second, the need for a high standard of academic attainment is being stressed. Applicants must have had senior middle school education or its equivalent in order to be considered.

Third, the power of the basic units in screening applicants has been diminished in favor of a system that gives much more influence to higher level authorities. Candidates will file their applications with their own units, but it appears that the latter only have the right to screen them in terms of the general requirements listed above. Those that satisfy these criteria are passed to a county- or district-level enrollment committee for further checking, after which candidates will take a standard entrance examination. On satisfactorily demonstrating academic competence, applicants will be subject to political and physical examinations and, ultimately, will be admitted to university.

Given the limited number of university places, competition will be extremely intense. A report from Inner Mongolia indicated that 100,000 applications have already been received for a mere 4,000 places, and the national average of applications to places may well exceed a ratio of over 30:1. The days when Chang T'ieh-sheng's blank test paper was viewed as an acceptable qualification are clearly over.

At university, most students will study science subjects, and first-degree courses have been extended to five years. Provision for postgraduate studies is also increasing, with the research institutes of the Academy of Sciences joining the major universities in drawing up plans to recruit postgraduates this winter. The Chinese University of Science and Technology, which is directly controlled by the Academy, has set up a special research college in Peking.[31] On completing their studies, graduates will be assigned to jobs in accordance with the needs of the State. It has been made clear that far fewer will be sent back to the communes than was previously the case.

Conclusion

The new policies, then, are those advocated by Chou Jung-hsin two years ago, and his posthumous rehabilitation is a recognition of this. It is possible to regard such changes as a rejection of Mao's views on education, but it would be premature to do so. One problem we face is to determine which of the many statements he made on education should be regarded as "typical" representations of his opinions. This is compounded by our ignorance of the Chairman's real role in the last years of his life. The "gang of four" was able to legitimize Leftist policies by recourse to many laconic "instructions," and we have no way of knowing if they were lifted out of context or, for that matter, were even genuine. As custodians of Mao's thought, Hua Kuo-feng and his colleagues have produced a *post hoc* and posthumous version of Mao's views that differs substantially from that presented a couple of years ago. To what extent the new approach deserves to be called "Maoist" is an academic question in more than one sense. It certainly can be (and is being) justified by extensive quotations from the corpus of his writings and speeches.

The real question is how far the change of emphasis will go. Up to now the shift in policy can be justified as nothing more than a necessary corrective to the Leftist excesses of the Cultural

Revolution and a desire to ensure China does indeed "walk on two legs" instead of limping on one. Many of the educational policies of the past decade are, when stripped of their political content, based on principles that have been part of the conventional wisdom of Western education for years, and were widely regarded as being particularly suitable for the needs of a developing country. It will be a retrograde step if revulsion against the "gang of four" leads China's educators to reject completely the positive legacy of the period.

APPENDIX

Selected statements of Chou Jung-hsin from the *Tel Quel* (TQ) and *Vento dell'est* (VE) collections

Source

TQ Since the Cultural Revolution the problem of the Revolution in Education has not been properly resolved. To say that the revisionist line has dominated the politics of education for seventeen years because of the disorders in Liu Shao-ch'i's line is correct. But the disorders in Lin Piao's line are not minor. We must not neglect [dealing with] Lin Piao's excesses. In this respect our work has been inadequate and this pernicious influence has been spread throughout educational circles. It is not correct to speak only of the "seventeen years" without mentioning Lin Piao's line. (July 23, 1975)

VE Metaphysics [i.e. extreme one-sidedness] is rampant on the educational front. (July 10, 1975)

VE At this time, when one speaks of education, one could say that it isn't worth a cigarette butt. (May 7, 1975)

VE These days, the standard of our universities is no higher than that of the old technical middle schools, either in terms of politics or professional competence. (October 20, 1975)

TQ In the universities now: no more culture, no more theory, no more scientific research. (No date)

TQ It must not be that there is no theory. The system before was "theory-practice-theory." Now it is "practice-practice-practice." Is this right? (October 20, 1975)

VE In creating universities, one must not think only of actual [i.e. present] needs. No one [today] is thinking of what we will need in ten years' time. (July 22, 1975)

TQ We must choose good middle school students and allow them to enter university directly. We have not been doing this in recent years. Next year, we must not fail to do it. (September 9, 1975).

Source

TQ The intellectuals must be treated correctly. We must not, on the one hand, use them to teach and, on the other, treat them as stinking intellectuals. How can they continue to teach well under such conditions? (August 13, 1975)

TQ Is it correct to treat all intellectuals as bourgeois intellectuals? There are some people who don't take any notice of the way in which the Chairman says certain things and who explain what he says in any way they choose. (October 20, 1975)

TQ If one places thoughtless emphasis on the principle "from the commune, to the commune," how will the needs of other departments be satisfied? (May 7, 1975)

TQ Doesn't the principle of "open-door schooling" just mean using people as a labor force? (July 22, 1975)

TQ Students are chosen from among the workers. Why is it necessary for them, upon graduation, to return to being ordinary workers for several years before being promoted to technicians? What's the use of having been to university? (July 22, 1975)

VE When I speak like this there are people who attack me, saying that it is right-wing opportunism; today there are deviations that interfere with the revolutionary line of Chairman Mao. I am not afraid. The fact is that it is necessary to have a turning point. I am not afraid if they make me destitute. I can become an official or even a simple citizen... We must find the cause of the problems of these last few years. During these past years there really have been some negative influences. The danger of these years is that, in the field of education, no one actually studies. (October 20, 1975)

NOTES

1. New China News Agency (NCNA), (Aug. 28, 1977).

2. *Peking Radio* quoting an undated *People's Daily* article (Sept. 14, 1977), in *Survey of World Broadcasts/Far East (SWB/FE)*, (Sept. 20, 1977).

3. Donald W. Klein and Anne B. Clark, *Biographical Dictionary of Chinese Communism* (Cambridge, Mass.: Harvard University Press, 1971), pp. 223-24.

4. *Tung-fang chien-hsün (East Wind News)*, Dec. 22, 1967, in *Survey of China Mainland Press* (American Consulate General, Hong Kong), no. 4104.

5. The most detailed account of the Minister's remarks appeared in Peking wall posters, and was copied down by foreign students. The fullest account is available only in Italian. See *Vento dell'est (East Wind*, Milan), no. 41 (1976), pp. 112-23. I am indebted to David Chambers of the Uni-

versity of Bristol for providing me with a translation. A shorter but similar compilation is available in French. See the collection appended to Alain Payraube, "Boiter sur Deux Jambes: La Revolution de l'Enseignement en Chine" (Limping on Two Legs: The Revolution in Education in China), *Tel Quel* (Paris), no. 66 (1976), pp. 22-24.

6. The information in this section is based almost entirely on the Italian and French compilations. Most of these statements did appear in extremely abbreviated form, attributed only to persons responsible for launching the "right deviationist wind," in a host of articles in the Chinese press and university journals in the early months of 1976.

7. The Shanghai Machine Tools Plant's "July 21" University became a major model in 1968. When I visited it in April 1976, it had become such a regular part of foreigners' itineries that visitors were presented with glossy brochures in English, colored photographs of leading workers, and so forth. Ch'ao-yang achieved fame much later. In December 1974, a meeting was held there at which Ch'ih Ch'ün and Mao Yüan-hsin made speeches, after which it achieved massive publicity as a "model" in 1975.

8. The case of the Liaoning students was discussed in *Liaoning Daily* (Apr. 23, 1975) in *SWB/FE* (Apr. 30, 1975).

9. *People's Daily* (Feb. 22, 1977).

10. The phrase was Lenin's.

11. The existence of this conference is known only from a handful of extremely brief and vague references in press articles and radio broadcasts over the years. One of these reveals that Chou En-lai was present, but virtually nothing is known about the conference except that it was held and that it laid down formal guidelines for the "revolution in education." Failure to publish details of what was obviously a vitally important meeting suggests that it was a particularly stormy affair.

12. This issue was obtained by the Italian students and the two articles are translated in the *Vento dell'est* collection.

13. "The Right Way to Train Successors for the Proletarian Revolutionary Cause," *ibid.*, pp. 124-27. No author's name is given, but Chou was subsequently identified as the author.

14. "An Analysis of the Pragmatist Concept of Education," *ibid.*, pp. 127-35. This is attributed to "Liang Ssu," a pseudonym for Chou Jung-hsin.

15. A Chinese informant, who was working in a university in Peking at the time, adamantly insisted that Huang Shuai's teacher must have had an excellent class background, as no one else would have dared to treat a student harshly.

16. *People's Daily* (Aug. 7, 1975). A Chinese informant drew my attention to this article, pointing out that it was well known in Peking intellectual circles that the Minister had "squatted at a point" in Tachai, and that the school was his personal model.

17. *Harbin Radio* (Feb. 20, 1976) and *Hopei Radio* (Feb. 27, 1976), both in *SWB/FE* (Dec. 30, 1975).

18. A Kyodo news service report (Dec. 22, 1975) in *SWB/FE* (Dec. 30, 1975).

19. For a brief discussion of the struggle over science policy in the 1970's, see John Gardner, "The Gang of Four and Chinese Science," *Bulletin of the Atomic Scientists* (Sept. 1977), pp. 24-30.

20. Peking Radio (Sept. 14, 1977).

21. Peking Radio (Apr. 2, 1977) in *SWB/FE* (Apr. 14, 1977).

22. *Ibid.*

23. NCNA (Mar. 22, 1977) in *SWB/FE* (Mar. 25, 1977).

24. Teng was formally rehabilitated at the Third Plenum of the Tenth Central Committee in July 1977. For a recent statement praising his "Outline Report," see Chung Ko, "The Struggle Around the Outline Report on Science and Technology", in *Peking Review*, no. 43 (Oct. 28, 1977), pp. 5-8.

25. *Red Flag*, no. 8 (1977), pp. 45-47.

26. In *SWB/FE* (Sept. 1, 1977).

27. NCNA (Sept. 19, 1977) in *SWB/FE* (Sept. 23, 1977).

28. NCNA (Mar. 31, 1977) in *SWB/FE* (Apr. 2, 1977).

29. "Recollecting Chairman Mao's Concern and Guidance of Educational Work in Science and Technology," *Red Flag*, no. 9 (1977), pp. 83-87.

30. For a detailed account of university enrollment procedures, see the NCNA interview with a "responsible comrade" of the Ministry of Education, NCNA (Oct. 21, 1977) in *SWB/FE* (Oct. 24, 1977).

31. NCNA (Oct. 22, 1977) in *SWB/FE* (Oct. 25, 1977).

There Is Such An Economist

Sun Yefang has made his mark on socialist political economy. Early on he was wrongly criticized, a good two years before the outbreak of the Cultural Revolution. Later, he was thrown into prison and detained for as long as seven years without a single valid count against him. But he did not give in. Removed from his official post, he had no wish to give up his views; in jail, he continued his research work and writing, with amazing pertinacity; rehabilitated, he is now working harder still, day in, day out. He is one from the older generation of working class intellectuals nurtured by the Party.

Seventy-two-year-old Sun Yefang joined the Chinese Communist Party in 1924, was sent to study in Moscow and took up political economy upon his return from the Soviet Union. After the countrywide liberation, he was once vice-director of the State Statistical Bureau and director of the Institute of Economics.

He is at once a scholar and a man of action. Through practice and years of deliberation in the field of theory, Sun Yefang has brought up some fresh notions on questions of socialist political economy. He is of the opinion that "planning and statistics should be carried out on the basis of the law of value," and once stated: "There may be one thousand or even ten thousand laws, but of all these laws, the first one is the law of value." He unequivocally emphasizes that profit should serve

Sun Yefang.

as an overall standard for examining the success or failure of the management of an enterprise. He stands for extending more power to enterprises, and so on and so forth. Today, these viewpoints are being accepted by an increasing number of researchers as well as people engaged in practical economic work. But these very ideas had in the past caused him to be labelled as a protagonist of "putting revisionist profits in command" and advocating "revisionist enterprise autonomy."

"I don't care if I lose my life, I don't mind if my name is compromised, but I will not abandon my views, and I want to live on for the sake of the truth which I uphold." That is what Sun Yefang said.

A Unique Book

Published first in 1867, Marx's *Capital* by 1971 was more than a hundred years old. In those years it was translated into various languages and upwards of ten million copies were printed throughout the world. But there is probably not another copy like the one kept at Sun Yefang's bedside in the cell. All the more important chapters, sections, passages and sentences are marked with different kinds of signs. Inside the pages there are book-marks made of toilet paper and candy-wrappers, in different shapes and placed in different positions. These markers and signs, which epitomize his very fruitful ideas, make up a "note book" which he alone can decipher.

In Sun's second year in prison, Lin Biao's plot was brought to light and his plane crashed when he tried to leave the country and defect. After that, life in the prison was slightly better. Sun was even allowed to read Marxist-Leninist works. Back in the early 1960s, he had already started writing a book on socialist political economy, having worked out an outline and made some drafts for a few chapters. But very soon he was under fire. When the great cataclysm began in 1966, he couldn't even find a quiet place or a desk to work at. There in prison, though a desk was nowhere in sight, he now at least had found a place quiet enough. So in his mind he started "writing" the book. Following the introduction there are 22 chapters and 183 sections, each one of which underwent thorough contemplation; every passage was carefully measured, every sentence precisely worded.

Economics on Both Sides Of the Bars

An economist was in prison, so was Marxist economics. Outside the prison walls the pseudo-socialist economics of Lin Biao and the gang of four

was at large. The time when Sun Yefang's views on socialist profit were being repudiated again and again was also the time when many enterprises in the country dared not mention profit and when they were suffering ever-mounting losses. The time when his suggestions for guiding economic work in accordance with the law of value were constantly under fire was the very time when our national economy was being penalized for violating objective economic laws and undermined to the verge of collapse.

As Long as He's Alive, He Carries On

In April 1975, Sun Yefang left the prison in a car — released with no explanation, just as he had been jailed with no explanation.

The car took him to the Institute of Economics and the first thing he said to people who came to greet him when he stepped out of the car was: "One, I won't change my mind. Two, I won't change my profession. Three, I won't change my views!" The gang of four was still in power at the time, Sun's friends were concerned for his safety.

Sun Yefang was infuriated by the distortion of Marxist principles by the theoretical swindlers then in control of public opinion. So he started reading Marxist classics even more attentively, enumerating the distortions item by item in order to expose them. He considered it important to read the works of Marx and Engels in the original and with this purpose in mind he persisted in studying German despite his advanced age and poor health.

Late at night when everything was quiet, he tossed in bed, unable to sleep, concerned as he was with the affairs of state and world events. As one who joined the Party as early as 1924, how could he not feel worried about his country and people when he saw the battered national economy?

The gang of four was toppled in October 1976. The following year the discussion of the criterion for testing truth was unfolded. After that, his situation steadily improved, enjoying once more the respect and honour due to an economist with both insight and backbone. The new Academy of Social Sciences contemplated appointing him director of the Institute of Economics. "Let a younger man do it," he said, "I'd rather be a rank and file researcher. Give me time to work on my book!"

Early every morning he gets up and sits at his desk to write down what he has worked out in his mind. Day and night, in winter as well as in summer, he keeps researching and writing, with little rest. Now outside prison bars, this veteran Communist is continuing the task he began inside, dedicating the rest of his life to an exploration of a road to socialist modernization in the Chinese way.

(Excerpts from a reportage by Deng Jiarong, correspondent of "Guangming Ribao.")

AGRARIAN REFORM AND CO-OPERATION IN CHINA, 1949-1975

by

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THE ESTABLISHMENT of the Chinese People's Republic in 1949 heralded a new social order in rural areas. The Agrarian Reform Law promulgated in June 1950 emphasized the redistribution of land and reorganisation of the supply of all inputs. The first step taken by the new government was its relatively moderate "Common Programme" of 1949, and in December 1951 the Central Committee issued its first directive calling for farm co-operation.[1] A formal resolution did not appear until February 1953 and until this time basic co-operative ventures were carried out in selected areas only on an experimental basis. The process of co-operation took the form of a multi-stage development process: mutual aid teams, elementary and advanced producer co-operatives, and finally communes. The whole process spanned a ten year period.

Mutual Aid Teams

The first stage in agricultural co-operation was promoted through the so-called Mutual Aid Teams, which were designed to compenstate for the chronic shortage of inputs in Chinese agriculture at that time, i.e. the lack of draught animals, equipment and labour. This rudimentary form of co-operation was the most flexible way of meeting the challenge of low productivity, lack of investment and seasonality, and initially each team only operated during period of intense farming activity, i.e. in the busy seasons of sowing, transplanting and harvesting, after which the teams disbanded and went about their own business.

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1. The "Common Programme" was adopted at the Plenary Session of the Chinese People's Consultative Conference on 29th September 1949; see Important Documents of the First Plenary Session of the Chinese People's Political Consultative Conference (Peking: Foreign Language Press, 1949).

Each peasant household pooled what materials they had available plus their labour, but the means of production remained in private hands and each member was free to dispose of his own produce as he saw fit. Gradually, such teams accumulated small amounts of common property and tended to stick together all season for their mutual benefit, but each individual farmer still retained the right to engage in his own production. By the end of 1954, over 60 per cent of all peasant households (45,364,000) were grouped into approximately 8.3 million mutual aid teams.[2]

Elementary Producer Co-operatives

In December 1953, a document was issued entitled Decision on the **Development of Agricultural Production Co-operatives** which marked the next stage in the co-operative movement in China.[3] It outlined the need for the pooling of all land under unified management. Under the new arrangements the farmer still retained rights to land, tools, equipment and livestock, but part of them was to be given over to co-operative use in the form of a share contributed by each member on joining the co-operative organisation.

This stage marked the beginning of the concept of common property. Farmers were given a payment for their share in the form of a dividend; a payment was also made for use of their tools, and their labour input was repaid as a wage in the form of work-points. The keynote of this semi-socialist experiment was centralised management of private ownership.

By the autumn of 1955, 14.2 per cent of the total number of farm households in China had joined the elementary co-operatives, of which there were 630,000. According to reports in the official press at that time, many were badly organised and inefficient.

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2. State Statistical Bureau, Statistical Materials on Agricultural Co-operativisation and the Distribution of the Product in Co-operatives during 1955 (Peking, 1957; reprinted in New China Semi-Monthly 94.20 (1956), 63-65.

3. Materials relating to the History of the Agricultural Co-operativisation Movement, vol. 2 (Peking, 1959), pp. 3-12.

People's Daily, for instance, reported on 3rd August 1954 that of the 95,000 elementary APCs set up in 1954, only 30 per cent were well organised. Peasant resistance was also reported to be strong, since many feared that their newly acquired land after land reform would be lost and with it any hopes of higher incomes. The government, however, pressed ahead as rapidly as possible until by the end of 1956, 96.3 per cent of all peasant households had become involved in the co-operative movement. This growth continued and by 1958 some 55 million peasant households (i.e. half the total rural population) were organised into Advanced Producer Co-operatives.[4]

Advanced Co-operatives

The next stage was to propel the co-operative movement into a more socialist form of enterprise on the Russian lines. The rapid surge of development up to 1955 led to the introduction of the co-operative farm proper in the Soviet sense, in which all the farmer's private land was transferred into collective ownership. When the peasant joined the movement, all payments for land shares ceased and payments for the use of tools and livestock were abolished. In June 1956, the National People's Congress adopted the Model Regulations for Advanced Agricultural Producers Co-operatives.[5] The regulations laid down that land and all other means of production were to be turned over to co-operative use, with members retaining the right to small private plots so long as these did not exceed 5 per cent of the total land of their village. The co-operative was to collect two share funds from its members: the production expenditure fund for the purchase of seed, feed and fertiliser; and the common property fund for the purchase of tools and equipment. Any remaining amount of money, after deductions for agricultural tax and welfare payments, was distributed according to the number of work-days. A work-point system was implemented with one work-day equal to about ten work points. The day-to-day running of the co-operative was carried out by a management committee made up of elected farm members with the help of a supervisory committee under the direction of the provincial government.

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4. Mao Tse-tung, On the Question of Agricultural Co-operation (Peking, 1962, Eng. edn), p. 28.

5. 9th November 1955; New China Semi-Monthly 74.12 (1955), 141-49.

While the average elementary APC consisted of about twenty households, the average size of the advanced APC was three times that of the elementary APC and ten times that of the former MATs, since the advanced APCs were formed by amalgamating the existing elementary APCs at village level. By 1956, 96 per cent of all peasant households were organised into APCs. The spread was, however, uneven. Not all passed through the three stages of MAT, E/APC or A/APC; in some cases, a rapid advance was made straight from MAT to A/APC.

TABLE 1 - % of Households' Participation in Co-operatives, 1950 - 1956

	MAT	E/APC	A/APC	% of Co-op. Membership
1950	10.7	-	-	10.7
1951	19.2	-	-	19.2
1952	39.9	0.1	-	40.0
1953	39.3	0.2	-	39.5
1954	58.3	2.0	-	60.3
1955	50.7	14.2	-	64.9
1956	-	8.5	87.8	96.3

SOURCE: State Statistical Bureau, Ten Great Years, Statistics of the Economic and Cultural Achievements of the People's Republic of China (Peking: Foreign Languages Press, 1960), p. 35.

A major problem facing the government at this time, as mentioned earlier, was peasant suspicion of land pooling and sharing all means of production. In addition, there was some evidence of peasant indifference to common property, which mostly affected livestock held communally. Traditionally, livestock were well cared for on private farms, but when ownership was relinquished to the collective, few seemed to be willing to take the same responsibility. Not surprisingly, livestock numbers showed a decline and in traditional pastoral areas such as Shantung, for instance, 30 per cent of draught livestock was said to be in a weak or incapacitated state. This obviously dealt a severe blow to production plans and the situation here was so bad that human labour had to be used for pulling ploughs.[6] In addition, problems arose out of central management. Not only did the

6. Collected Law and Regulations of the People's Republic of China, vol. 7 January-June 1958 (Peking: People's Publishing House, 1959), p. 301.

co-operatives lack skilled employees such as accountants and clerks, a severe handicap was the low level of literacy and, therefore, basic communication of management objectives. Subsidiary industries and crafts declined and as a result the farmer's income fell by as much as 30-40 per cent. One sideline severely affected was pigs. In 1954 there was reported to be 101 million pigs, but in 1956 the total had fallen to 60 million.[7] Not surprisingly, many farm families began to agitate for withdrawal. The People's Daily on 22nd March 1957 stated that in Canton Province alone 160,000 households had clamoured for withdrawal during the winter months. Peasant hostility grew and in 1957 reform to payments went some way in alleviating the situation. But six months later, a more radical approach was presented following the announcement of the plans for fuller co-operativisation of the economy in the form of Rural Communes.

Communes

When China had finally succeeded in organising one million highly individualistic peasant households into 750,000 APCs in 1956, it was generally assumed that this would remain the institutional structure for a very long time. The agricultural crisis and peasant inertia referred to above, and the lack of balance between industry and agriculture, generally gave an urgency to the search for a more radical approach to China's land problem. In August 1958, a new movement in rural areas was announced, said to have started in Honan province in April of that year and to have spread to other provinces. The merging of twenty or more APCs, including 20,000 or more members, spread over as many as 50-100 villages until a vast single 'commune' took place. The new unit was to be an independent administrative and economic unit with total control of all industry, agriculture, health, education and defence of an area, the administration of local branches of ministries, and supply and marketing co-operatives and shops and credit institutions such as savings societies and banks. The communes became responsible for the day-to-day running of an area from birth to death.

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7. D. Tretiak and B.H. Kang, "An Assessment of Changes in the Number of Livestock in China, 1952-1970", World Agricultural Economics and Rural Sociology Abstracts, Oxford 14.4 (1972), p. 4.

In the second half of 1958, some 750,000 co-operatives were merged in 26,000 communes, each composed of approximately 3,000 households.[8] The overall aim was self-sufficiency, and the commune introduced new methods of organisation, management and distribution. The new movement focused on small local industries, e.g. fertilizer plants. The original concept of large monolithic units, e.g. Federation of Communes, was found to be ill-conceived and as the agricultural crises of the so-called 'three bitter years' (1959-1961) deepened, partly due to bad weather and mismanagement, the massive organisational structure was split into a three-level system: commune, brigade and team. As the sole accounting unit, the original commune was to be the owner of all property and products and was to be responsible for food distribution and the supply of daily necessities among its members. This large, cumbersome system came under increasing pressure until power was transferred first in 1959 to production teams comprised of 200-300 farm households. This was followed in the winter of 1960 by further decentralisation: production teams were renamed brigades, with teams below this level comprising no more than 40 households. In 1961 the team became the accounting unit.[9]

After 1962 a more liberal attitude was taken to stimulate production, and production patterns virtually reverted to the design set by the old APCs. In 1963, there were approximately 74,000 communes comprising about 700,000 brigades and 5 million teams,[10] with seven teams in a brigade and nine brigades in a commune. The number of households and the amount of land in use is set out in table 2.

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8. G. Dutt, Rural Communes of China (London: Asia Publishing House, 1967), p. 1.

9. NCNA, Peking, 27th October, 1958.

10. New China Year Book, 1964 (Tokyo: Inst. of Asian Studies, 1965), p. 319; NCNA, Peking, 22nd March 1966.

TABLE 2 - Amount of Arable Land and Numbers of Households in Co-operatives in China, 1963

Unit	Area (Mu)*	Size
Commune	21,760	1,822
Brigade	2,180	171
Team	310	24

SOURCE: C.S. Chen & C.P. Ridley, Rural People's Communes in Lien-Chiang. Documents concerning communes in Lien-Chiang County, Fukien Province 1962-1963 (Stanford: Hoover Inst. Press, 1969), p. 6.

(* 1 mu = 0.067 ha.)

The average Chinese commune was reckoned to be 4.7 times that of a Soviet Kolkhoz in terms of household members, but it has about 50 per cent less land under its control.[11]

The post-1962 era was characterised by a more pragmatic approach to the problems of farm management, while an extensive education campaign was run in rural areas. The situation stabilised and continues to the present day basically unaffected by the ravages of the Cultural Revolution (1966-1969). China's Fourth National People's Congress, held in Peking from 13-17 January 1975, reaffirmed this position. Article 7 of the 1975 constitution on the communes described them as an organisation which "integrates government administration and economic management". It also confirmed that "at the present stage" the three-level system of ownership, i.e. commune, brigade, team with the latter designated basic accounting unit, will continue. Article 7 also provides for private plots and "limited" household sideline production, and the production of "small numbers" of livestock provided that the development and absolute predominance of the collective economy are ensured'.

While, however, the present communes are different from the old agricultural producer co-operatives in several ways, in that they are larger, more self sufficient and more socialist in nature, the differences are largely socio-political and it may be argued that in terms of agricultural organisation and economic

11. New China Year Book, 1964, p. 319.

management the commune is not very different from the former co-operative farms. At present there are about 80,000 communes throughout China, each one having individual characteristics based on local environmental conditions.

Commune Organisation and Management

Since 1958 the main form of rural institution has been the commune which has consolidated the lowest level of bureaucratic management at the scale of the old marketing community. It is possible to view the commune in several ways: as a monolithic production unit composed of a vast number of farms; as a simple administrative organisation similar to the xian (county) structure; or as a fully integrated agro-industrial system. In fact, the commune is both one and all of these things. A leading article in People's Daily in 1960 described the commune thus: 'The rural people's commune is the unified organiser of production, exchange, distribution and consumption in rural villages. It is an all-embracing enterprise which includes farming, forestry, animal husbandry, sidelines, fisheries, together with industry, commerce and transportation. It is also the basic unit which integrates government administration and commune management and which manages industry, agriculture, trade, education and military affairs."[12] As such an integrated rural social organisation, it acts as the focal point for all agricultural planning, organisation and decision-making processes in the Chinese countryside. It is a unit small enough to be able to amalgamate economic and political management and to co-ordinate rural development work. Current agricultural planning stresses decentralization of decision making and flexibility at all times, and the internal structure of the commune reflects this.

Entrepreneurial activity may operate at any level. Agrarian structure is so closely integrated that innovation can be adopted rapidly for maximum effect. The general development plan for a brigade takes into account revenue potential and the multiplier effect of each enterprise, and it is not unusual to find pig-duck-fish combinations operating on a complementary basis, the pig manure being used as pond fertiliser for plankton to feed the fish, as well as manure for the cereal crop, with pond mud supplementing the fertiliser for the fields and providing an additional revenue when sold outside the commune. Fish waste is utilised both as pig feed and fertiliser. Pigs

12. People's Daily, 5th August, 1960, p. 1.

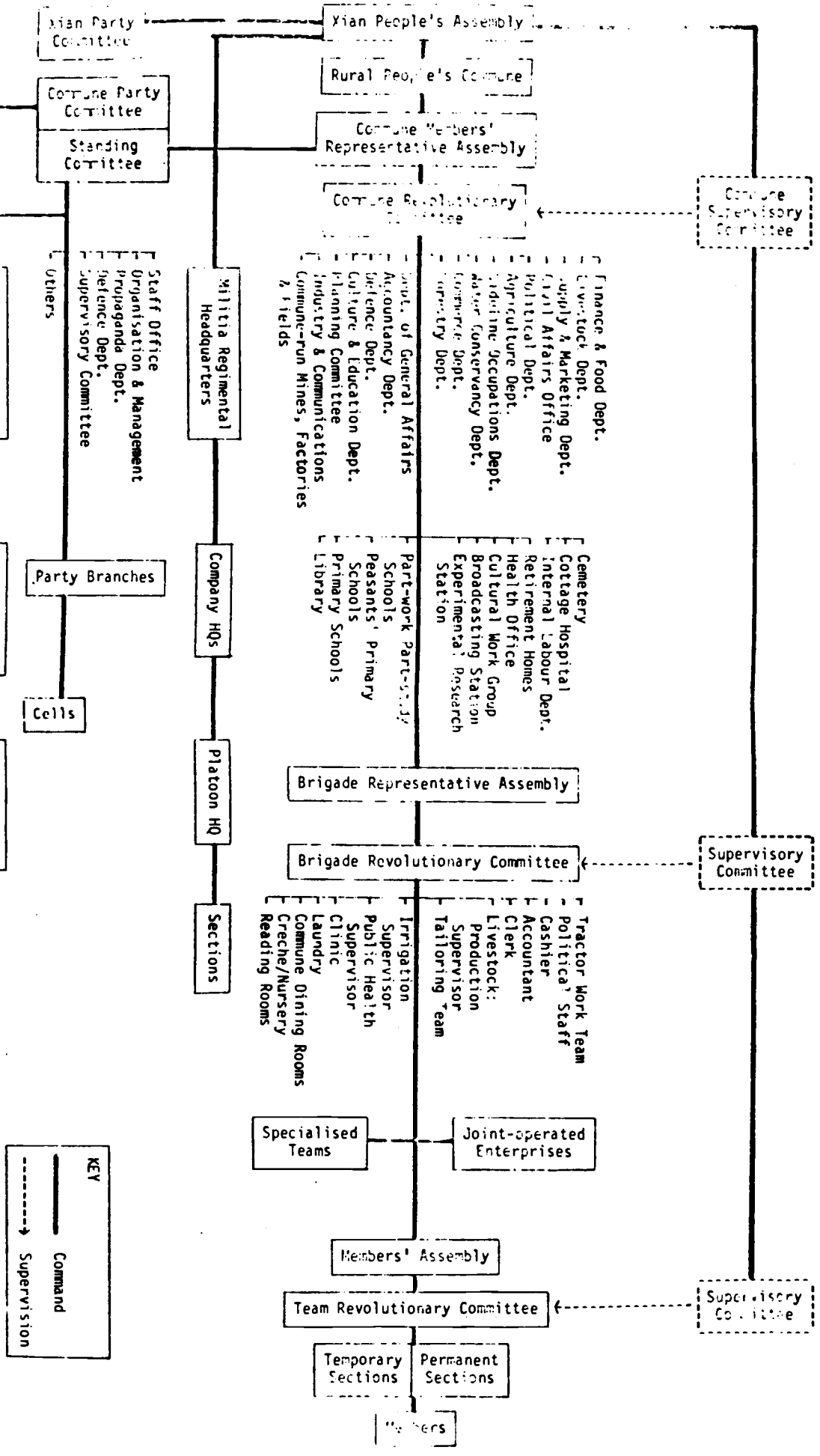
will also use the waste produced by grain processing and, in turn, the grain processing plant utilises the brigade's own grain, potatoes, legumes, etc., the products of which are sold part to the State and part to the commune members at reduced prices.

Specific economic activities may be organised at any level: team, brigade or commune; the basic criterion is efficiency of human and material resources. The team is the basic accounting unit at the present time, and this consists of a number of households. Private plots are retained for self-supply of essential provisions. Planning is a two-way process involving various levels of management decision-making, with emphasis being placed on local initiative. The general line of the Party and Government (ideology) provides the guidelines to decision-making **(see diagram opposite p. 210 and 211).**

The location in the structure of industry and any economic activity depends to a large extent on the scale of undertaking. Generally speaking, the larger the scale of undertaking the higher up the institutional chain it will be linked, e.g. fertiliser plants, machinery and technical equipment are usually located at the commune level, while smaller farm-processing plants tend to occur at brigade level. Small crafts of one kind or another take place in the team, especially where they are capable of attracting extra income. Regional variations can occur where larger capital construction projects normally undertaken by the commune will be carried out by the brigade. In general, the commune exercises a supervisory and command function, county administration and planning of services. It exercises the local government function (see diagram) and, therefore, contains higher levels of education, health and finance. For instance, where the local government (county) authority needs to meet state procurement plans, liaison with units is carried out with the commune which communicates requirements down to the designated level, providing at the same time the technical assistance requireed to meet the response.

The Commune Role in Farm Planning and Management

The plan for commodity circulation is a major constituent in national economic planning. Three major categories may be distinguished: (1) major commodities-cereals (including potatoes), cotton, essential oils, soyabeans and certain industrial products; (2) secondary commodities-sugar, pigmeat, vegetables, hides and skins; and (3) miscellaneous items-handicrafts, mulberries, tree oil.



COMMUNE ORGANISATION AND MANAGEMENT

Diagram 1

Flexibility of operation of the State Plan is the key to national planning in China. In principle, firmer control is assumed over the first category items, consisting of staple commodities. The responsibility here lies directly with the State Planning Commission. Each unit must work to a norm and supply according to a quota. Such products receive priority planning in the unit's production plans. There has been, for instance, a tendency for some units to go for cash crops for extra income in preference to cereals. This has been severely criticised by the government who continually stress 'cereals as the key link in the economy'.

Crops in the second category are subject to less control and come under the command of the Ministry of Commerce.[13] Units are allowed considerable leeway in planning their contribution to the year's crop production plan. Sugar cane is traditionally preferred in the south, and pigs provide a popular alternative farm enterprise under mixed farm conditions in central China. Obviously, a certain amount of local environmental preference comes in, e.g. tobacco and tea in south-west China.

The third category includes a wide variety of local speciality items, e.g. rattanware, brick and tile manufacturing, local brewing and native products sold at the so-called 'third-class products fairs'.

The overall control at local level rests with the Revolutionary Committee (management committee - see the diagram on page 210 and 211) who translate the plans and targets down from the higher authority and the proposals from the lower level up to the higher level for consideration and approval. The system of reporting ensures that the plans are reasonable and that no unrealistic quotas are set. The reporting system is the main instrument available to management in China for decision-making. The flow of information from top down to bottom requires the delivery of analytical reports and production results, spot checks and model surveys. These are usually interpreted and disseminated in the form of printed bulletins. Constant monitoring and analyses are made of the reproduction (Investment)

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13. Reinstated in 1972 after the Cultural Revolution. Generally, it is responsible for the direction of retail trade and the distribution of inputs to small and medium enterprises (NCNA, 8 November 1972).

process in order to broaden the level and pattern of investment of individual enterprises. It is also necessary to take into account the classification of inputs and incomes according to the place of their appearance in basic production units. The principle is to make management cadres aware of current state policy in their economic unit, of deviations from the State Plan and seasonal changes, etc. and to acquaint them with the policy rationale.

It is impossible to elaborate a scientifically uniform programme of analytical or synthetic information governing particular production processes for a country such as China given the esoteric nature of politics and the diverse environmental conditions. Nevertheless, the existing reporting system seems to adequately serve the needs of most units and farmers under the limited options farmers are allowed under the system. The process hinges on the training and availability of key managerial staff (cadres) and their ability to interpret and execute changes in production. In any case, the government tries to avoid working to a rigid schedule or complex plans. Units are warned against the dangers of 'blind production' or 'commandism'. Premiums set at up to 20 per cent are paid to units producing in excess of the quota.[14] There are no penalties for lack of achievement.

Labour Management and Systems of Payment

At present the team is still the basic accounting unit.[15] Teams own all land, draught livestock and farm equipment. The commune provides the supervision and heads the overall command structure, as well as providing its own enterprises. Teams operate under the responsibility system under which teams divide into groups and assume 'responsibility' for fulfilment of individual produc-

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14. N. Maxwell, 'Learning from Tachai', World Development 3.7/8 (1975), p. 476.

15. Article 7 of the Constitution set out at the Fourth National Congress, Peking, 13-17 January, 1975. But see also discussion below on Tachai where the team has been eliminated.

tion tasks.[16] Group meetings consist of approximately a dozen members, each with 'fixed' labour assignments worked out under the terms of the production plan. The plan, approved by the commune and brigade, is jointly drawn up on the condition of 'exchange with equity in value on a voluntary and mutually profitable basis'[17] to make the best use of local conditions. The voluntary nature is stressed in contrast to 'commandism' and earlier rigid central planning. Although team members are expected to perform several task, there is a primary duty to farm an assigned plot of land. In 1966, a slogan appeared in conjunction with the Tachai brigade system of labour management called the 'three fixed, one substitution' which re-emphasized the principle of the importance of field tasks but at the same time called for greater job flexibility.[18]

Current practice is to follow the 'basic labour day' under which the peasant is obliged to complete a specified number of working days. Thus each male is expected to put in somewhere around 26 days each month, and females 24 days each month, in collective labour. Put another way, it requires an individual to accumulate a minimum number of work-points, say 2,500 a year for a male or about 2,000 per female. In 1966 a 'basic labour assignment system' was introduced which requires team members to be present at work each day, except for official holidays. Each work-day is made up of eight hours.

The general theory of remuneration will also be discussed below under incentives, and attention is drawn here to basic concepts adopted since 1949. The 'labour production quota' and 'piece-

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16. 'The production plans of a commune must be built upon the production plans of the brigades and their contracts with the teams. The allotment of crops, targets and technical arrangements must be decided upon between the brigade and the teams, after consultation with each other and the masses of members. The members are "masters of the family".' People's Daily. 21st December, 1960, p. 1.

17. People's Daily, 21st December 1960, p. 1.

18. Ibid., 22nd March 1966.

work' system[19] first operated under a system in which 'work-points' could be accumulated. Other systems include 'merit awards' and 'contracts' and the 'work done by the day' system. Under the first, individual tasks would be completed and points assigned upon evaluation by cadres. The 'contract system' enabled peasants to contract for a particular job before it was completed,[20] accumulated work-points, recorded by a 'work-point recorder' being used as the basis for wage distribution. Methods of labour payment in rural areas are complicated by the fact that there are variations in application of national systems, as well as different systems operating at any one time.

From a terminological point of view, systems of remuneration still rely heavily on Soviet usage. A major problem of Marxist theory is evaluation of skill. Therefore it is possible to find several methods of evaluating job assignments. Unlike the industrial sector where a straight 'wage-grade' system operates, agricultural wages are more difficult to calculate due to the wide variation of farming skills, e.g. between dairyman and poultryman, arable hand and stockman, etc. Therefore, some brigades opted for a straight breakdown of manpower according to age, class of labour, and time grade.[21] Under such a scheme youths would earn several work-points less than other age groups for similar tasks.[22] This has given rise to such terms as 'semi-labour' or 'weak labour' etc. Technical merit, a difficult concept to pure marxist ideology, has had to rate extra points.

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19. Tsai Yuan-yuan & Teng Tse-hui, 'An exploratory discussion on methods of calculating labour remuneration in People's Communes - the system of recording work by piece rate', Kuang Ming Daily, 20th May 1963; and Hsu Kang, 'An enquiry into several problems in China's piece rate wage system', CCYC, 17th February, 1959.

20. F.W. Crook, 'Chinese Communist agricultural incentive systems and labour productive contracts to households 1956-1965', Asian Survey 13.5 (1973), 472-81.

21. Southern Daily, 6th October, 1961.

22. People's Handbook (1959), p. 42.

Domestic Sideline Production

Miscellaneous team production is accounted for under this head where it augments the collective income. Such production may be 'collective' (the work of a single team) or 'joint' (if it involves the co-operation of more than one team, say in the case of processing where one team in a brigade provides the raw material and the other the plant). The cash income from this source of employment provides a valuable contribution to the team economy, enabling investment in certain items of equipment the team might not otherwise be able to afford. A team with a small kiln, supplying bricks and tiles for its own use and able to produce a surplus, will be able to engage the services of a local smithy, or purchase its own drainage pump.

The basis of remuneration for sideline production includes: 'work-points in absentia' monetary compensation for work-points lost when craftsmen operate outside their own village (masons, tilers, drivers, etc.); premiums payable for items raised and sold (seedlings, immature trees, piglets and boars transported for breeding purposes to another team); piece-rates for handicraft workers; and long-term contract prices for the processing of agricultural products.

There is a yearly distribution of income, but in addition most brigades have a post-harvest share-out. Also, a deficit accounting system operates whereby peasants may draw up to a given amount of their entitlement throughout the year to meet unexpected events (births, marriages and deaths) and the purchase of the odd luxury item (sewing machine, bicycle, etc.). In some areas this is covered by bi-annual advances (spring and autumn) with the balance settled before the New Year. This payment represents only a portion of the peasant's total income over the year, since account must be taken of his miscellaneous income and the product of his private plot.[23] After deducting taxes.

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23. Private land, which consists mainly of small family plots, constitutes less than 5 per cent of total cultivated area. Private farms exist in minority areas where the sparse population precludes collective production. The role of private plots in socialist agriculture is important. For instance, in the Soviet Union, Wädekin has estimated that about 40 per cent of total private farm output originates outside the collective sector. The income from this source also accounts for a significant share of the peasants' food and income. (K.G. Wädekin, The Private Sector in Soviet Agriculture (Berkeley, 1973). K.R. Walker has also estimated that in

(2-5%), interest on loans (1-2%), production expenses (about 25%) etc. from gross income,[24] total net income is distributed throughout the entire team according to the total number of work-points accrued.[25] Each family will have a joint entitlement for each working adult member of the team.

The system as it operates in Hu-Li Brigade is described below.

TABLE 3 - Total Income, Hu-Li Brigade

Source of income	Quota production (tan)	Unit price (yuan)	Amount (yuan)	Percentage of total amount
Food grain	1,078.6	8.6	92,761	62.6
Economic crops	-	-	18,078	12.2
Fruits	1,286.3	15.0	19,295	13.0
Brigade enterprise	-	-	18,160*	12.2
Total	-	-	148,294	100.0

* This is a residual sum derived by deducting all other items from the total

SOURCE: Chen/Ridley, Rural People's Communes in Lien-Chiang (Stanford, 1969), p. 29.

China private plots supplied 14 per cent of calorie intake and as much as 34 per cent of peasants' total income (Planning in Chinese Agriculture: Socialisation and the Private Sector (London, 1965), pp. 32 & 34).

24. 'Fixed value of agricultural production' is the team's total income from farming and sidelines. This is computed from the government's annual quota multiplied by prevailing prices for individual crops. In case of subsidiary industries, the calculation is based on the number of work-points.

25. See for instance, H.C. Champeau, 'Five communes in China', Current Scene 14.1 (1976), p. 14; 'How Chiaoli production team distributes its income', China Reconstructs 21.8 (1972), 2-9; and A. Nathan, 'Paying the Chinese farmer', FEER 43.9 (1964), 457-58.

The Tachai system is described in the following section. In addition to this cash distribution, a payment of kind is made of food grains produced. Grain is rationed in China and all cereals are subject to state procurement and the 'distributed grain', in current terminology called 'basic food' is made to all members irrespective of their labour contribution. Additional entitlements are made on the basis of work-points accumulated and paid for at the 'unified market price', payment being deducted from the peasant's annual wages. Those peasants who do not accumulate sufficient work-points are known as 'grain deficit households' or 'overdrawn households' and must provide a cash advance for their grain purchases or provide additional labour for any advanced rations in the next crop year.

Distribution ratios operate to a varying degree throughout the countryside as follows: grain surplus to State requirements, less the amounts paid in terms of agricultural tax and that set aside for seed, feed and the team reserve - the so-called 'three retained foods' - are distributed at an agreed ratio, e.g. 70:20:10, i.e. 70 per cent as 'basic food', 20 per cent as labour payment, and 10 per cent for purchase of inputs. At the individual level this works out at some convenient drawing right, plus the opportunity to purchase additional amounts subject to team conditions; for example, 7 lbs of grain per 100 work-points, in addition to a basic ration of 20 lbs per month, would not be far from general practice. Examples are given in Table 4 on page 219.

Division of Income and Systems of Remuneration, taking Tachai as an Example

One main reason why Emulation of Tachai[26] is considered so important to current policy is how it deals with the system of

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26. This brigade in Hsiyang county, Shansi province, consisting of 83 households and a total population of 430, came to the forefront at the time of the Cultural Revolution when it was noted for its stubborn adherence to the style of the GLF by embarking on new labour intensive projects. During the 'three bitter years' 1960-62 when crop failure plagued China, Tachai was able to double its grain quota. Official reports currently indicate that Tachai's cereal yields are significantly higher than other parts of China, rising from 101.64 tons (1.8 tons/ha) in 1953 to 385 tons (7.7 tons/ha) in 1973. See Tachai: Standard Bearer in China's Agriculture (Peking: FLP, 1972) and N. Maxwell, op.cit., p. 475.

TABLE 4 - Distribution of Food Grain Production in Lien-Chiang

	Hu-li brigade		Hung-t'ang brigade		Shan-k'ang brigade		Average of three brigades
	Quantity (catties)	Per cent of total	Quantity (catties)	Per cent of total	Quantity (catties)	Per cent of total	Per cent of total
Seed	24,794	2.3	29,500	3.5	9,000	3.0	3.0
State levy and purchase	530,900	49.2	372,000	44.3	148,000	48.7	47.4
Feed	24,340[a]	2.3	18,300	2.2	6,000	2.0	2.2
Ration	487,897	45.2	421,500	50.0	138,817	45.7	46.9
Work	(71,143)[b]	(6.6)	(50,500)	(6.0)	(14,881)	(4.9)	(5.8)
Basic	(416,754)[b]	(38.6)	(371,000)	(44.0)[c]	(123,936)	(40.8)	(41.1)
To the brigade	2,058[d]	0.2	-	-	-	-	-
Others	8,774[e]	0.8	-	-	1,919	0.6	0.5
Total	1,078,763	100.0	841,300	100.0	303,736	100.0	100.0

SOURCE: Chen/Ridley, Rural People's Communes in Lien-Chiang County, p. 27.

(a) Including feed for fowls owned by the brigade. (b) Including ration for brigade enterprise personnel. (c) The percentage given in the Chinese statistics is 42.9 which seems to be incorrect. (d) Exclusive of feed for fowls owned by the brigade and ration for brigade enterprise personnel. (e) A computed residual amount.

payment and division of income. The Marxist ideal of 'to each according to his need' has played an ephemeral role in most socialist societies, and the successful reform of what still are basically capital systems of labour payment is considered to be a major step in the transformation of the socialist economy.

Tachai's total income has been given for 1973[27] as follows:

	RMB
Agriculture	86,416
Sideline occupation*	69,960
Forestry	12,043
Livestock enterprises	14,000
	182,419
Less tax	1,610**
Total	180,809

* Includes income from hiring out transport and farm machinery RMB 55,148; grain processing 4,679; sale of bricks and tiles from kiln 4,505; pig manure and meat 1,373; smithy 1,300; and miscellaneous items amounting to 2,995.

** This tax is low. In China agricultural tax is progressively reduced as production rises. The tax used to be as much as 6 per cent; currently it fluctuates around 1 - 5 per cent (see p. 586).

The main crop in Tachai is maize, followed by wheat and kaoliang. Total grain harvested in 1973/74 was 385 tons, of which 150 tons was sold to the State, made up of the state procurement quota of 80 tons plus an additional 70 tons being bought at bonus rates. A distribution of 114.5 tons remained for brigade consumption and reserve, the balance of 120.5 tons being used as reserve for feed and seed. How this grain and total cash income is distributed is decided annnually at a meeting of the whole village, usually after the harvest. At this AGM each household is able to publicly propose an assessment of its own food requirements for the coming year, based on the previous year's consumption and any subsequent changes in family circumstances, i.e. births,

27. N. Maxwell. op.cit., p. 476. Maxwell's figures seem to take no account of production costs.

deaths or ill-health. This assessment is subject to criticism, comment and ratification by all other brigade members. If this method seems strange, it should be remembered that lineage relations and kinship ties are strong in rural China and few villages are able to hide facts or conceal relationships in traditional rural society, and although some 'bending of the regulations' and favouritism may occur the system is not so startling as to be unworkable. However, the Tachai practice is not universally applied in China, and although it is general practice for food to be distributed as payment in kind the method varies from Tachai to some extent.

The Tachai brigade also avoids the orthodox work-point system that relies on labour grading or complicated piece-work systems in favour of 'self-evaluation and public assessment' of a peasant's norm. Once this norm has been established, calculation of an individual's entitlement is arrived at by calculating the actual amount of labour performed weekly, monthly or annually, this assessment being the responsibility of the 'work-point recorder'. A peasant whose norm has been set at 9, having worked 308 days in the year would therefore obtain 9 x 308 = 2,772 work-points.[28] The total amount remaining for brigade distribution after deducation of production costs, payment of agricultural tax and contributions to accumulation and welfare funds will then be divided by the total number of collectively-earned points, which gives a cash value to the work-points. This cash value is then multiplied by an individual's total to provide a monetary sum representing the peasant's net collective income. A family unit adds up its joint entitlement, deducting total cash equivalent of food grains etc. drawn by the household in the previous year. The balance is paid out in cash.

Summary

The difference between the commune and the co-operative in China explained in this analysis has tended to follow socio-political objectives. Whilst the Agricultural Producer Co-operative was chiefly engaged in farming, the communes, after it was established, combined all farming operations within a local government function. Hence, the commune is the chief political body in a given rural area. As such it not only carries out farming operations, but is also responsible for education, health and local industry.

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26. N. Maxwell, op.cit., p. 480

The old APC was simply a two tiered farm structure with co-operative ownership at only one level; the commune, on the other hand being a three-tiered organisation has a collective ownership at all three levels, with the team as the basic accounting unit. Undertakings run by teams account for the largest proportion of the commune's total assets.

Actual structural organisation of agriculture has not changed significantly since the advent of the communes. Current policy stresses, re-settlement of the population to combat the rural-urban drift and enhance the technology and services of rural areas, decentralisation of industry and the eventual replacement of the team by the brigade to the accounting unit. Peasant participation is now much discussed. Sound financial management is stressed as one of the most important factors in co-operative undertakings. The task is to run the co-operative with thrift. Waste must be eliminated and proper accounting procedures are given provinence in management.

At present, significant resources are being committeed to rural development. Industry is being urged to support agriculture. Practical, vocational training is being expanded with emphasis on farming. Decentralisation has also applied to research institutions which now come more under the jurisdiction of the provincial administration with the expected hope that practical results will be applied successfully to local areas. The principle of 'distribution according to need' is being pushed ahead following the lead of Tachai and farmer's incomes are being increased with productivity.

The Chinese experiment is quite distinct from other socialist countries and this short review of recent development has tried to bring together the various aspects of nearly three decades of co-operation.

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Publications

Kappagoda

6 copies of the following:

IDRC-037e - *Study-service - a survey*
IDRC-088e - *Project impact: a progress report on Innotech Project Impact in the Philippines and Proyek Pamong in Indonesia*
IDRC-117e - *The world of literacy: policy, research, and action*
IDRC-157e - *Rural energy in Fiji: a survey of domestic rural energy use and potential*
IDRC-104e - *Housing Asia's millions: problems, policies, and prospects for low-cost housing in Southeast Asia*
IDRC-107e - *Caqueza: living rural development*
IDRC-133e - *Science and technology for development: planning in the STPI countries*
IDRC-130e - *Science and technology for development: technology policy and industrialization in the People's Republic of China*
IDRC-TS18e - *Science and technology for development, STPI Module 1: a review of schools of thought on science, technology, development, and technical change*
IDRC-TS19e - *Science and technology for development, STPI Module 2: the evolution of industry in STPI countries*
IDRC-TS20e - *Science and technology for development, STPI Module 3: the evolution of science and technology in STPI countries*
IDRC-TS22e - *Science and technology for development, STPI Module 4: the present situation of science and technology in STPI countries*
IDRC-131e - *Give us the tools: science and technology for the Third World*

AGRICULTURE, FOOD AND NUTRITION SCIENCES

An Overview of Agriculture

There are several texts which give an adequate account of the general agricultural situation in China (Dawson, Kuo, Perkins, etc.), but there are no works covering the micro-level or specific crops or cropping systems. (IRRI have produced a slim volume following the Zandstra visit.)

The best account of forestry in China is Richardson.

Aquaculture is hardly touched on at all by writers outside of FAO and IDRC itself, though this has been a key area in China's food supply system for many years now. The best sources must be the numerous trip reports, but they are of varying quality (see list elsewhere in this guide).

Total cultivated area is estimated to be 150 million ha; of this 31 percent is considered good soil, 40 percent medium quality, and 29 percent bad soil (alkali, sandy, etc.).

The total value of agricultural output for 1979 (output value for farm products, forestry, livestock production, sideline occupations, fisheries and commune-run industries) has been given (*Beijing Review*, 12 May 1980) as RMB 158 400 (Cdn.$130 363), 4.2 percent above the national plan target and 8.6 percent higher than 1978. The 1979 output (in metric tons) of some major farm products is set out below:

	Metric tons
Cereals	332 115 000
Oil crops	6 435 000
composed of:	
Groundnuts	2 822 000
Rapeseed	2 402 000
Sesame	417 000
Sugarcane	21 508 000
Beet	3 106 000
Jute	1 089 000
Cotton	2 207 000
Tea	277 000
Silkworm cocoons	271 000

With regard to forests, 4 489 000 ha were afforested in 1979 (6.2 percent more than in 1978).

China has also reported increases in livestock production in 1979 as follows:

Hogs	319 705 000
Large livestock	94 591 000
of which cattle	71 346 000
Sheep and goats	183 142 000

Total output of meat (beef, pork, mutton) is currently about 10 624 000 tons. We also have a figure for aquatic products for 1979 which, at 4 305 000 tons, was reported down 7.5 percent over 1978 figures. Conservation measures were given as a reason for this fall.

On the farm machinery front China is reported to have some 667 000 large to medium tractors (used mainly on the extensive farming areas of the northern wheat zone) and 1 671 000 hand tractors for the rice belt. The proportion of mechanized ploughing rose 40.9 percent in 1979. An average of 109 kg of chemical fertilizer was applied to each ha of farm land (counted on the basis of 100 percent effectiveness).

Total electricity consumed by rural areas was 28 270 million kwh; there are 84 000 large and small reservoirs in operation, with a storage capacity of 400 000 million cubic metres, supplemented by 2.1 million power-operated wells.

Utilization of Improved Varieties of Crops

Rice

Currently grown on 35 million ha, producing about 200 million tons annually. The first HYV of rice were introduced in the early 1960s and the first IRRI varieties in 1967. Currently about 5 million ha are sown to HYV in Southern China. Nanking Agricultural Research Institute plays a key role in rice improvement programs in China.

Wheat

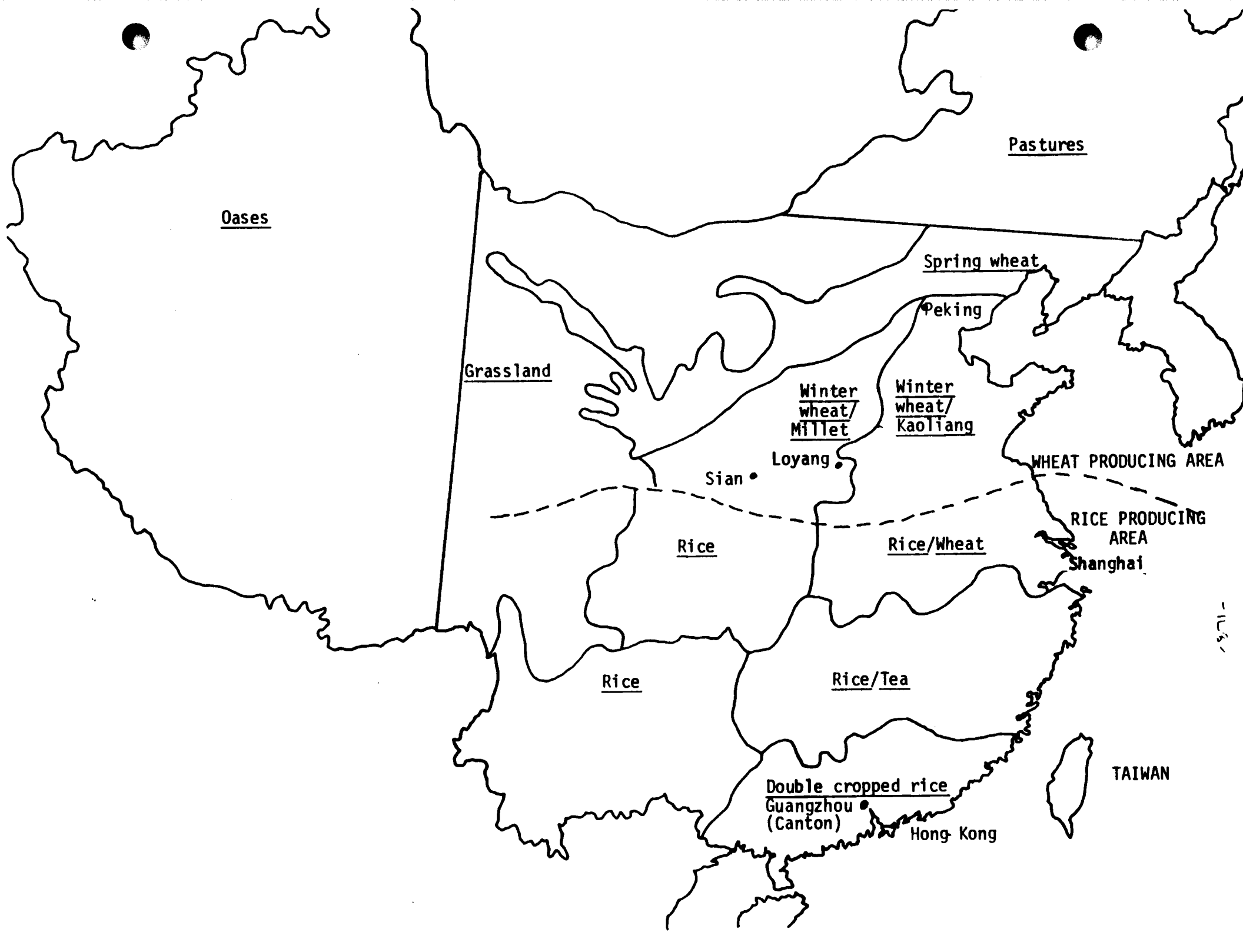
Similarly, HYV of wheat were developed in the early sixties, and in the North some 4 million ha are now sown. It seems the first HYV dwarf winter wheat were only introduced in 1972. Since 1975 increasing quantities of quality Mexican seed have been introduced. A closer relationship now exists between IRRI and CIMMYT and an exchange of scientists is now a regular occurrence. Sorghum hybrids and improved varieties of millets are increasing.

September is not a good month to view research problems in temperate cereal crops such as wheat, triticale, or sorghum and millets either. The harvest of winter varieties has been completed by June and planting does not recommence until the end of September. Winter varieties account for as much as 85 percent of total wheat production. The southern limit of the winter wheat belt roughly follows the line of the Yangtse River. Spring wheat is confined to 41 - 48° N latitude, China's three Northeastern provinces and is similar to Manitoba and Saskatchewan, the only difference being that the heaviest rainfall occurs in late June and July when the wheat is ripening.

In the Nanking - Shanghai area it is common to see sorghum grown in small plots along the marginal land beside the railway lines and ditches.

Vegetable production is very important in China. Although the average Chinese consumes very little meat each day, everyone takes a generous amount of vegetables, up to ½ kg per caput per day. You will often notice a brisk trade being done on street corners when a fresh supply of a particular crop is available.

Vegetable plots spring up everywhere, even on tracts of land in parts of the urban areas, marketing is informal and most of the produce is grown and sold within a few minutes walk of the seller. There is little processing. Storage does not appear to be a problem as everything that comes on the streets is consumed rapidly. Again, September is a lean month for viewing vegetables, unless journeying to the warmer areas of the South, where production is organized on a more natural basis. Much of the commune-produced vegetables around Guangzhou go to feed the tourist industry of Hong Kong.


Oases
Pastures
Spring wheat
Peking
Grassland
Winter wheat/ Millet
Winter wheat/ Kaoliang
Loyang
Sian
WHEAT PRODUCING AREA
RICE PRODUCING AREA
Rice
Rice/Wheat
Shanghai
Rice
Rice/Tea
TAIWAN
Double cropped rice
Guangzhou (Canton)
Hong Kong

J. Hulse via A. McNaughton 28 July 1980

K. Broadbent File: 4166-22

China trip

This is an initial response to your request to help identify some key persons and institutions for your forthcoming visit to the PRC. Last week I telexed Myle Brady at IRRI for confirmation of some of their contacts, though I believe many will be covered by the list I have drawn up below. It is usual for the Chinese officials responsible for such visits to draw up a relevant itinerary, and they are pretty good at this, but, unless you can pinpoint some names or priorities beforehand, you might come away frustrated by not getting to speak with key people in your field.

BEIJING

1. Ministry of Agriculture and Forestry (MAF)

General: Minister - Huo Shihan
Vice-Minister - Xiao Peng
Director, Bureau of Foreign Affairs (MAF) - Li Yingkai
Deputy Director* - Ma Ling (see also 4 below)

Post-harvest: Director, Commune Industries Department (MAF) - Chang Zhijai

Aquaculture: Director, Bureau of Freshwater Fisheries (MAF) - Chang Yangchung
Deputy Director - Sun Chiaji

The MAF would be a priority visit for you in Beijing (Peking) and I would expect from there you would get good advice for further contacts in agriculture/aquaculture, etc.

/continued...

2. Chinese Academy of Agricultural Sciences (CAAS)

President: Jin Shanbao
Vice-President: Ho Guangwen

Please note: Lin Shicheng, rice breeder and Deputy Director of Research at CAAS, was recently appointed to the IRRI Board, so it might be useful to touch base with him. Within the CAAS there are a number of specialized institutes that you may, time permitting, wish to visit:

- Crop Breeding and Cultivation Institute;
- Crops Institute;
- Institute of Mechanical Engineering, etc.

It is probably best to indicate your own priority area of interest when requesting a visit to the CAAS.

3. Chinese Academy of Forest Sciences (CAFS)

Director: Hou Zhipu

This is an offshoot of CAAS and, until late 1978, was combined with (2) above, as the Chinese Academy of Agriculture and Forestry Sciences. Two members of the new Academy attended the recent Rattan and Bamboos Workshop in Singapore. They are:

Deputy Chief, Bamboo Division: Shi Quantai
Deputy Chief, Division of Foreign Affairs: Chao Chingju.

4. Chinese Association of Agriculture

Deputy Secretary-General: Ma Ling* (He is also a contact of IRRI)

Secretary: Huang Yungning

/continued...

5. China Aquatic Products Society

6. China Forestry Society

Director: Wu Zhonglun

7. Beijing Agricultural University

SHANGHAI

1. Shanghai Branch of the CAAS

Deputy Chairman: Tang Chieyan

2. Shanghai Branch of Chinese Association of Agriculture

Tung-jiapon

3. Bureau of Aquatic Products

Director, Freshwater Division: Kao Kengchiao

4. Shanghai Institute of Aquatic Products Research

Director: Tao Chishia
Yan Zengfu
Director, Freshwater Division: Kao Kengchiao

/continued...

GUANGZHOU (Canton)

1. Aquatic Products Bureau

Deputy Director: Sun Xiaomin
Fish Breeding: Guofu

2. Provincial Research Institute of Aquatic Products and Fish Breeding Farm

Director, Training Department: Mao Chenhua
Manager of Farm: Zeng Vupian

3. Marine Division at Guangzhou

Head: Li Kemin

The selected site for the FAO/UNDP project is:

Aquaculture Centre,
Wuxi,
Jiangsu Province.

One could, of course, draw up a huge list of potential places but I think visits to the Ministry, the various Academies and Societies listed here will provide very fruitful contacts. I would expect that, in any case, visits to one or two production brigades/teams will form part of the tour.

I will produce a more detailed briefing guide before the date of your departure but, in the meantime, please get back to me if you have any specific questions or want additional information.

K. P. Broadbent

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c.c. S. Akhtar

CHINA'S NEW AGRICULTURAL ORGANIZATIONS

Beijing's readjustment program, making agriculture the basis of the economy and calling for an increase in state investment to 14 percent, compared with 10.7 percent in 1978, has been coupled with the creation of an extensive organizational structure to formulate and implement agricultural policy. Over the past few months, six new ministries have been established to keep China's food production ahead of its growing population.

In addition, a new scientific society, the Chinese Atomic Energy Agricultural Society, has been added (June) to China's long list of academic organizations. It will be chaired by an expert in radiation genetic breeding, Xu Guanren. The society's charter calls for the promotion of atomic energy science and technology in the specialized fields of agriculture.

The State Agricultural Commission, a high-ranking body under the State Council, and headed by Vice Premier Wang Renzhong, was established in February to draw up agricultural plans in conjunction with the State Planning Commission and monitor the performance of the new ministries of:

Ministry	Minister
Agriculture [1]	Hou Shilian
Forestry [1]	Lo Yuchuan
Agricultural Machinery [2]	Yang Ligong
Water Conservancy [3]	Qian Zhengying
State Farms and Land Reclamation	Gao Yangmin
Ministry of Food	Chen Guodong [4]

Other cabinet level changes include:

- Reinstitution of the State Agricultural Bank (March).
- Establishment of a "national commission to survey natural resources and for agricultural zoning" (April), also chaired by Wang Renzhong. This is probably an ad hoc agency formed to complete land surveys, investigate resource utilization, and map out zones for specialized production and agricultural mechanization.
- Inauguration of a Scientific and Technical Committee (May), chaired by Jin Shanbao and responsible to the Ministry of Agriculture. Composed of more than 70 members, it will review agricultural policy in terms of its science and technology implications.

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[1] Formerly part of the Ministry of Agriculture and Forestry.
[2] Formerly part of the First Ministry of Machine Building.
[3] Recently divided from the Ministry of Water Conservancy and Power Industry. The new Ministry of Power Industry is under Liu Lanbo.
[4] Transferred in June from the All-China Federation of Supply Marketing Cooperatives, now under a new director, Niu Yinguan.

Agriculture in China

The most populous nation appears to have achieved the objective of producing enough food for all its people. It has done so largely by the adoption of improved strains of rice and wheat

by Sterling Wortman

Visitors to China in recent years consistently report that the population appears to be healthy and adequately nourished. In the light of China's reputation as a country where hunger has been no stranger for centuries and catastrophic regional famines used to be almost annual events, many Western agriculturalists have reacted to these reports with skepticism. Last year I served as chairman of a group of 12 visitors from the U.S., including some of our foremost agricultural scientists, who were able to judge for themselves how matters stood. We traveled in China for 28 days in August and September.

One major purpose of the visit was to arrange an exchange of germ plasm of Western and Chinese strains of plants. At the same time the group looked forward to learning what it could about contemporary Chinese agricultural practices and to testing by observation the official government position that agricultural production in China is now adequate to the task of feeding the nation's growing population.

In the course of its travels the group met with a number of Chinese agricultural scientists and technicians representing various government agricultural organizations. We visited agricultural communes in the provinces of Kwangtung, Shensi and Kirin and also on the outskirts of two of the three principal cities in China: Peking and Shanghai. We first traveled to Kirin in China's vast wheat growing northeast (where sorghum, soybeans, millet and maize are also important crops). We flew from there to Sian, the capital of Shensi province in China's western wheat belt, and then traveled by train to Nanking in Kiangsu province, passing through some 600 miles of agricultural land devoted to wheat and rice farming. We ended our visit touring the vicinity of Canton, in the heart of China's multiple-cropping rice country. Wherever we went we found that, compared with farming in other developing nations, Chinese farming generally was going well.

An appreciation of agricultural practices in China is enhanced by the comparison of some equivalent Chinese and U.S. statistical data. The total land area of China (some 973 million hectares, or roughly 2.3 billion acres) is larger than that of the 48 states of the continental U.S. Much of China, however, is too mountainous or too dry for agriculture. Arable land represents only a little more than 15 percent of China's territory, whereas the arable land in the 48 states makes up more than 20 percent of the U.S. total.

When the comparison between the two nations is put in terms of arable land actually under cultivation, it is quite another matter. For example, the estimate of arable hectares actually planted in the U.S. in 1964 is 116 million out of a total of 156 million. That same year China, with a total of only 107 million hectares of arable land, raised crops on 150 million hectares. This seemingly impossible statistic reflects the traditional Chinese practice of multiple cropping: raising two or more crops per year on the same land.

Another significant comparison is the proportion of the total population of China and of the U.S. that engages in agriculture. The population of China is currently estimated at between 850 and 900 million. The number of Chinese engaged in one or another kind of agricultural activity is generally agreed to be from 80 to 85 percent of the total population. Thus estimates of the agricultural labor force in China range from a minimum of 680 million to a maximum of 765 million. (The difference between the high estimate and the low one is greater than the populations of France, Holland and Belgium combined.) In comparison the U.S. agricultural labor force is quite small. It consists of only 2 percent of the total U.S. population of 210 million, or 4.2 million workers.

China's agricultural activities are not distributed evenly across the nation. A substantial part of all farming is done in the plains and deltas of three great river systems: the Yellow River in the north and northwest, the Yangtze in eastern and central China and the Pearl River in the south. The Manchurian plain in the northeast, which includes the three provinces of Kirin, Liaoning and Heilungkiang, is also a major production area. Indeed, most food and fiber production would fall within the region

ındo[illegible] and 45 degrees [illegible] 100 degrees east lon[illegible], and [illegible] ater part of the farm[illegible] fined to the eastern two-thirds this same north-south band [*see illustration on next two pages*]. In terms of versity of climatic zones and of crops ited to local conditions this geographical range resembles that found in the .S. between northern Minnesota and lorida.

A worldwide agricultural practice that applied in China to an extent unqualed elsewhere is irrigation. About a ird of all cultivated cropland in China, some 33.5 million hectares, is irrigat. By way of comparison fewer than 16 illion hectares of the arable land in the .S., or little more than 10 percent, are rigated.

China's arable land is a small per**entage of the whole: 15.3 percent. Land** at is too arid, too high or too poor in oil to be suitable for either grazing or orestry accounts for 18 percent more. rasslands occupy another 28 percent nd forests 8 percent. The missing 30 ercent or so in this accounting is land at was once cultivated but has since een abandoned. Originally forest or lly rangeland, it was farmed piecemeal t various times in the past and then ft to erode. Whether many of these lost 00 million hectares can be reclaimed r agriculture or even for high-quality orestry is quite doubtful. Reforestation ould, however, at least halt further rosion, runoff and silting, thereby helpg to stabilize stream and river flow. uch a reforestation program is reportdly in progress but our group gathered o data on it.

China's principal food grain, in terms not only of area sown but also of ons harvested, is rice. In terms of area wn wheat comes next. Because rice is ften double-cropped and almost no heat land yields two wheat crops a ear, the harvest tonnages of the two rains are quite different. Benedict avis of Cornell University estimates at in 1971 the Chinese planted 34.2 illion hectares to rice and 27.5 million ectares to wheat. According to his estiate, the 1971 paddy-rice harvest (that , the tonnage before milling removes e husk) was 111 million metric tons d the wheat harvest was only 42 mil- metric tons.

Other food grains are also important Chinese agriculture. Estimates of reas sown and tonnages harvested, owever, are hard to obtain. Principal mong the lesser grains are sorghum Chinese kaoliang), millet and maize; barley, oats, rye and buckwheat are also grown. Finally, the Chinese raise such tubers as the white potato, the sweet potato and the yam. Harvest data for the tubers are often lumped with the statistics on food-grain production by reckoning a fourth of the tubers' fresh weight as being equal to the same weight in grain. For example, estimates for 1971 indicate that 51 to 59 million hectares were sown to grains other than rice and wheat and that another 10 to 15 million hectares were planted to tubers. Between 70 and 75 million metric tons of miscellaneous grains and from 24 to 36 million tons of tubers were harvested.

The 1971 estimates give observers of Chinese agriculture a kind of baseline for later statistics. It was after tabulation of the 1971 harvest that the Chinese government announced attainment of **agricultural self-sufficiency. The government** reported a total 1971 yield of 250 million metric tons of food grains. Estimates by Stavis and by the Food and Agriculture Organization of the United Nations arrive at much the same figure: 247 and 249 million metric tons respectively.

It is common to find conflicting statistics regarding Chinese agricultural production. It is not surprising; most of the available statistics are frankly presented as estimates. Nevertheless, Chinese agricultural activity has unquestionably advanced since the People's Republic came to power in 1949. Much of the increase seems to have been achieved between 1957 and 1971, a period that witnessed a rise of some 65 million metric tons in the production of food grains.

The use of modern high-yield agricultural methods, although applied to only some 20 percent of China's cultivated land, seems to have been responsible for more than two-fifths of the 1957–1971 gain. How did this increase in productivity come about? Extrapolating backward from what we observed in 1974, we find it possible to suggest some (although not all) of the answers to the question.

The 12 members of our group jointly drafted a report of our visit, and this article is largely based on that report. Individual members also observed and reported on their particular fields of interest, and so primary credit for specific comments should be apportioned as follows: rice and the problems of organizing research, Nyle C. Brady, director of the International Rice Research Institute; wheat, forestry and the current status of agriculture, Norman E. Borlaug, director of the International Wheat Improvement Program; soybeans, Richard L. Bernard of the Agricultural Research Service in the U.S. Department of Agriculture; maize and sorghum, George F. Sprague and Jack R. Harlan of the University of Illinois; millet and forage grasses, Glenn W. Burton of the Agricultural Research Service; plant pathology, Arthur Kelman of the University of Wisconsin; vegetable crops, Henry M. Munger of Cornell University, and exchange of genetic resources, Harlan, John L. Creech, director of the U.S. National Arboretum, and the author. During our travels Philip A. Kuhn of the University of Chicago, a historian whose interest is in China from the 17th century to the present, provided us all with valuable insights, as did Alexander P. DeAngelis, a China specialist with the organization that sponsored our visit, the National Academy of Sciences of the United States.

A good starting place for our review is the Chinese program to improve rice yields. Internationally the key "green revolution" advances have been the development of high-yield dwarf strains of the two principal types of rice: "japonica" for temperate climates and "indica" for tropical ones. For example, the indica dwarf known as IR 8 was developed at the International Rice Research Institute in the Philippines. We learned that similar dwarf indica varieties had been developed in China by means of local breeding programs that were initiated in 1956. These Chinese indica dwarfs were put into commercial production in southern China early in the 1960's. Chinese japonica dwarfs had been planted widely in northern China some years earlier. **The Chinese use** of independently developed varieties of high-yield rice does not mean that China's agricultural scientists are ignoring Western advances in the field. For example, IR 8 was first released by the International Rice Research Institute in 1966. IR 8 seed was brought to China the next year and has now been widely tested (as have many others, including IR 26, the dwarf variety most recently released by the institute).

We were told that by 1965 high-yield indica dwarfs were grown on 3.3 million hectares of southern rice land. By 1973 the area devoted to the high-yield dwarfs had increased to 6.7 million hectares. That is roughly a fifth of all the land sown to rice in China. Moreover, the figure does not include the area sown to high-yield japonica dwarfs in northern China. Wherever we traveled we saw only dwarf varieties of rice, except for some nondwarf plants growing in plots at experiment stations.

[illegible] of rice [illegible] commercial varieties in the south of China, has been developed from these improved varieties. The high-yield dwarfs are quick to mature. Heavier applications of fertilizer have also increased productivity. We found, however, that where triple cropping was practiced it was not customary to plant rice all three times. Instead, particularly in areas where only two crops a year had been raised in the past, the pattern was rice-rice-wheat or rice-rice-barley. Raising of the alternative crop was confined to the months least suited to rice culture.

On balance, we credit the combination of extended irrigation, increased application of fertilizer and the introduction of high-yield varieties of rice as being instrumental in making China by far the largest producer of rice in the world today.

Wheat is China's second most important food grain. New high-yielding varieties of winter wheat have been developed locally, beginning in the early 1960's. The first of the new wheats to be generally sown was a tall-strawed type; by 1965 it was growing on as many as 2.5 million hectares. A variety of dwarf winter wheat with about twice the yield potential of the tall-strawed wheat was first planted in 1972; now two or three other locally bred dwarf varieties are also available. As with rice, the Chinese have not ignored the progress that has been made by Western agricultural scientists. Quantities of seed from several varieties of dwarf spring wheat, developed by Mexican scientists and by the International Wheat Improvement Program staff in Mexico, have been purchased by the Chinese. In 1973 5,000 tons of Mexican seed were imported. In 1974 the total was 15,000 tons.

Late August and early September is not the time to survey wheat crops; we saw no wheat (nor any barley, oats or rye) growing during our visit. The 1974 winter and spring wheat had already been harvested, and the planting of winter wheat does not begin until the end of September and early October.

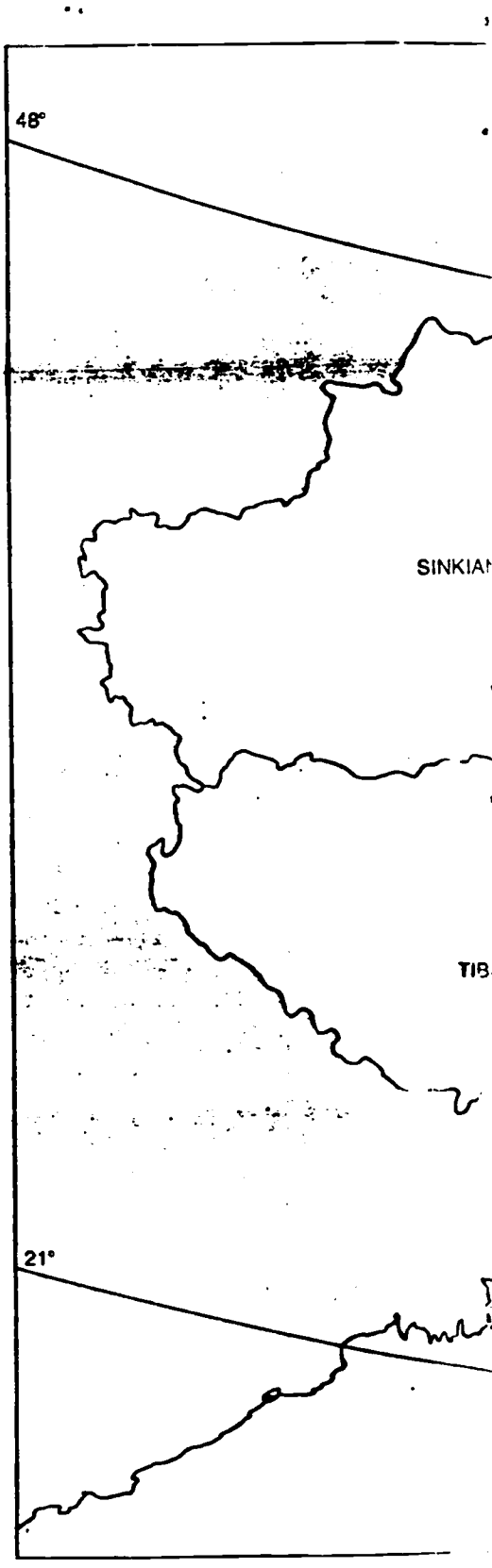
To increase wheat yields the Chinese not only are introducing new varieties but also are extending southward the zones where both winter wheat and spring wheat are raised. In some of the new areas winter wheat is grown in the interval following harvest of the late rice crop and preceding the planting of the early rice crop. The success of the program in these areas will depend on the use of quick-maturing varieties of rice and winter wheat and the application of increased amounts of fertilizer. In pushing spring wheat culture southward the Chinese are sowing spring wheats in the fall in areas where little or no wheat was formerly grown. The use of early-maturing, high-yielding varieties of spring wheat from Mexico has made possible this expansion.

In the northeastern provinces the spring-wheat harvest comes too late to allow any but very modest efforts to follow it with a second crop, such as vegetables or buckwheat. Most of the wheat land lies fallow until the next spring. During the past two years, however, promising experimental results have come from planting rows of maize between rows of spring wheat about a month after the wheat has been planted. Mechanical wheat harvesting is not possible when that is done, but for the Chinese, with their labor-intensive approach to agriculture, it is not a serious obstacle.

Soybeans are grown throughout China but are considered a major commercial crop only in the three provinces of the northeast. There they are planted in late April or May and harvested in September and October. Because of the shortness of the northeastern growing season, soybeans are not double-cropped. In the fields we observed in Kirin, however, the plantings consisted of alternate strips of soybeans, six to eight rows wide, and much wider strips of maize. Irrigation was rarely in evidence, harvesting was done with hand sickles and machines served only for threshing. Most of the harvest is sold to the state and is used to make the traditional soy products—bean curd and soy sauce—that represent an important high-protein part of the Chinese diet.

Elsewhere in China soybeans serve a fill-in function, being seeded on the banks of ditches and streams, roadsides, railroad rights of way, field margins and any odd piece of ground too small or too steep for a commercial crop. They are also intercropped in orchards and are the predominant species in many farmers' individual gardens. Some soybeans go to market as green pods and some serve as livestock feed, but most of the fill-in crop is consumed by the growers themselves.

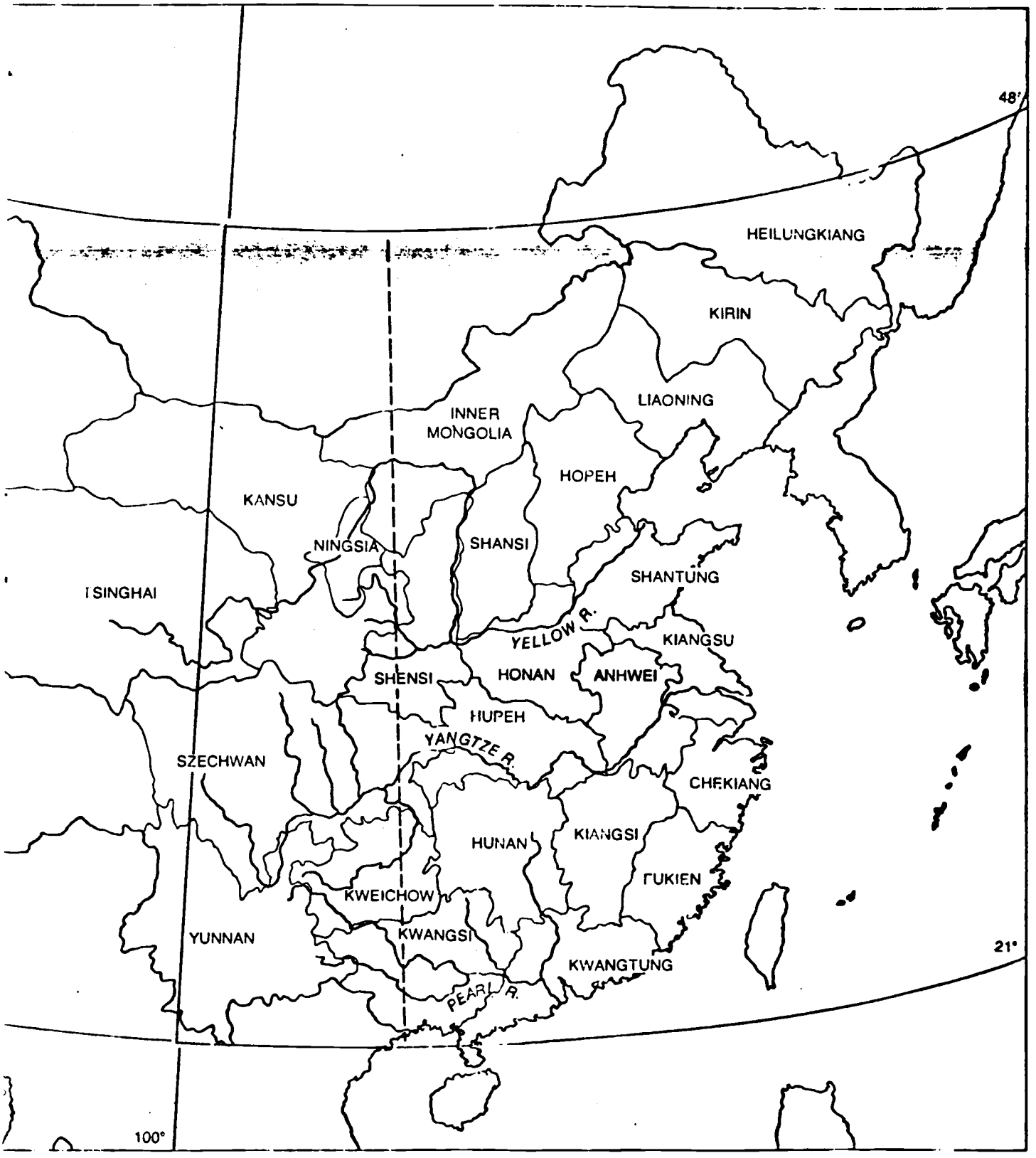
We observed soybean-breeding programs being undertaken both at the Kirin Academy of Agricultural Sciences and at the Northwest College of Agriculture near Sian. Some 80 percent of the soybeans grown in Kirin are improved varieties that were developed by the academy. At the Northwest College of Agriculture a five-year breeding program had culminated in the development of a new soybean variety in 1970. The improved strain matured in 105 to 110 days and thus could be successfully grown as a second crop following the winter-wheat harvest in mid-June. This has now become a general practice in central Shensi.



AGRICULTURE in China is almost entirely confined to the rectangle (*color*) bounded

[illegible] of hybrid varieties of maize and [illegible]n has contributed significantly to the increasing yields of these crops during recent years. For example, we were told that in Kirin between 60 and 70 percent of the area used to grow maize was sown to hybrid varieties. Maize is by no means a newcomer to China, having first been introduced some centuries ago. Hybrid maize now predominates, particularly in northern and central China; some of the hybrids are derived from older U.S. inbred lines.

Maize planting, cultivation and harvesting is done by hand. The stalks are cut at ground level; the ears are husked and hauled to a drying floor, and the stalks are stored for winter feed. After partial drying the ears are shelled and the grain is further dried until its moisture content drops to a level suitable for



on the west by 100 degrees east longitude. Most of the country's food is produced in the eastern two-thirds of the rectangle. From north to south the climatic zones in China are roughly equivalent to the zonation from northern Minnesota to Florida in the U.S.

storage. Millet is not a particularly popular foodstuff among the Chinese; in the absence of better, and since the winters are long and severe, some of the crop is used as pig feed.

Sorghum, a grass that was first domesticated in Africa, entered China long enough ago to evolve several subraces that are not found elsewhere except in Japan and Korea. Today these original sorghums have been almost completely replaced by hybrids. The hybrids under cultivation in Kirin were different from those in Shensi and had been developed by local agricultural experimenters. In Kirin sorghum is eaten more or less like rice. The seed is "pearled" to remove its brown coat, the bran is fed to pigs and the pearled grain is boiled until it is tender. In Shensi, where the cereal tradition is based on wheat, the whole sorghum seed is ground into flour and baked. Although the northeast is the traditional sorghum belt, both there and in Shensi the crop is steadily being replaced by maize; in the northeast today sorghum and maize occupy about equal amounts of arable land.

Millet was the first food grain to be grown in China, beginning more than 6,000 years ago. Its original wild progenitor can still be found in Shensi, and the species of millet that is grown widely in China today, *Setaria italica*, may well have evolved in Shensi. A grain high in protein (12 percent of dry weight), it makes an excellent golden porridge when it is boiled; it is easy to understand why millet is the preferred cereal in Kirin even though rice, wheat, sorghum and maize are available.

The principal advantage of millet as a crop is that it can be raised successfully in semiarid regions where occasional rainfall is the only source of water and other grains will not thrive. Moreover, its straw is rated ahead of other cereal straws as a feed for livestock. As a result millet is often sown broadcast and is cut before it reaches maturity to produce a high-quality fodder. In semiarid parts of northern and northeastern China, where irrigation is not feasible at least for the present, and where some cattle, sheep and goats are raised, the future of millet as a food and forage grass seems assured.

With respect to domestic animals, the distribution of livestock other than pigs and poultry in China is significantly regional. For example, almost all sheep and goats are found only in the mountainous areas of China's western provinces and in the extensive grasslands of Inner Mongolia to the north and Sinkiang to the northwest. Except for a few dairy herds in the suburbs of major urban areas, cattle are similarly confined to the west and the frontier. Horses, mules, donkeys and water buffaloes, all maintained almost exclusively as draft animals, are virtually the only large mammals found in agricultural China [*see illustration on page 21*].

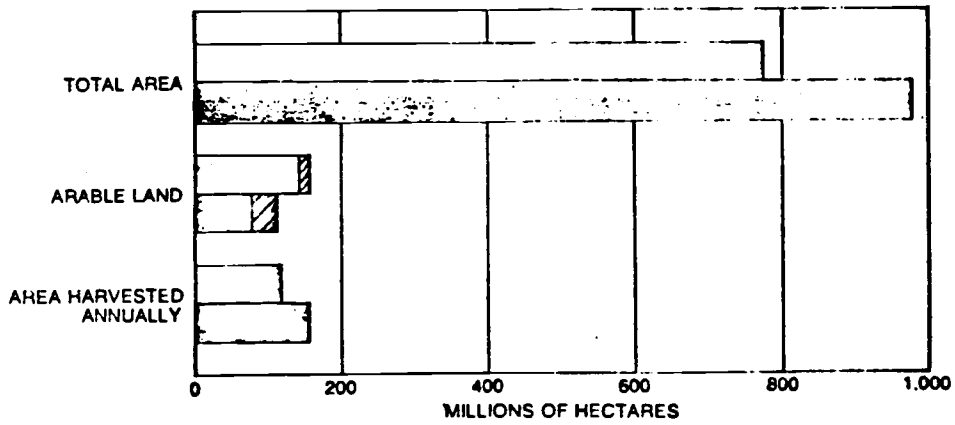
A domesticated animal that is of paramount importance throughout China, however, is the pig. In 1972, according to a conservative U.S. Department of Agriculture estimate, there were nearly 260 million pigs in China. This is approximately four times the number in the U.S., a nation that prides itself on its pork production. A comparison of the two countries' production methods is illuminating. In the U.S. the objective is to produce a 100-kilogram pig in the shortest possible time, usually less than six months. The young pig is fed a balanced ration of maize and soybean meal supplemented with minerals, vitamins and antibiotics. In China pigs are fed mainly the by-products of agriculture: the weeds and water plants collected by farmers, the pods and leaves of soybeans, peanuts and rape, cornhusks, corncobs, cabbage and sweet-potato leaves and the bran from rice, wheat, sorghum and millet. Since many of these plant products are fibrous and difficult to digest they are usually chopped up, soaked and fermented before being used as feed. Needless to say, pigs gain weight more slowly on this kind of diet. They usually come to market at eight to 12 months of age, weighing between 70 and 100 kilograms; the state will not buy pigs that weigh less than 50 kilograms.

Swine husbandry is mainly an individual enterprise. The breeding stock is maintained by the commune, and the piglets are provided to individual households, generally two to a family. Hand-raising a pig or two not only guarantees the farmer some pork in his diet but also adds to the family income. Perhaps above all, the pigs are valued for the manure they produce; it is one of the key ingredients in the organic compost that still makes up a large part of China's fertilizer.

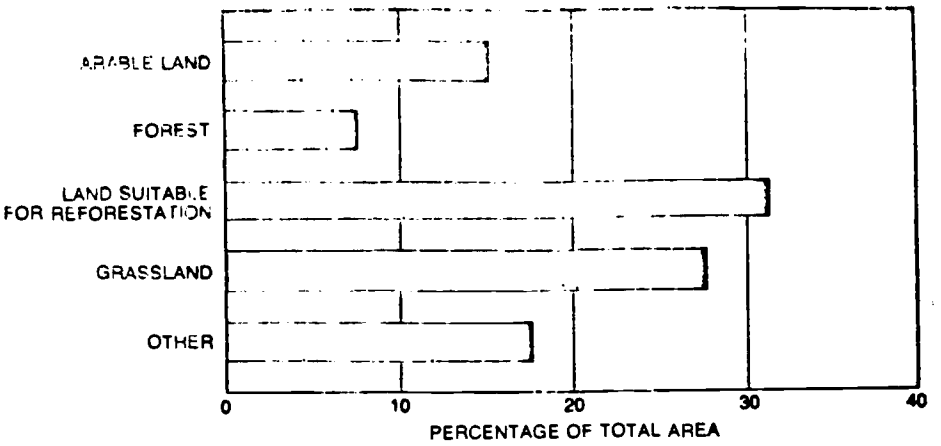
Having reviewed China's principal crops and noted the gains in productivity that are attributable to the introduction of higher-yielding varieties of plants, it is now appropriate to examine other factors that have affected and will affect agricultural output. Perhaps foremost among these factors is an increase in the use of fertilizers. The amount of fertilizer applied in China today is small by American standards. By Chinese standards, however, recent increases in use of fertilizer have been substantial.

The value of organic fertilizers has been recognized in China for centuries. Crop wastes such as the straw from rice and wheat and the stalks from sorghum and maize are combined with animal feces (particularly pig and human feces) and urine in pits or compost piles and allowed to ferment and decompose. Before 1960 soil fertility in China was almost entirely dependent on the return of this organic manure to the fields, on the sowing of nitrogenous ("green manure") crops and, where conditions allowed, on spreading the fields with silt dredged from lakes and waterways.

Over the past several years the Chinese have supplemented the use of traditional organic fertilizers with the application of increasing quantities of



LAND AREAS available for agriculture in China (*color*) and the U.S. (*gray*) are roughly comparable. The 48 contiguous states of the U.S. are smaller in area than China by some 200 million hectares (*top bars*), but the U.S. area includes nearly 50 million more hectares of arable land (*middle bars*). Not all U.S. arable land is cropped each year, however, whereas some Chinese arable land yields two or three crops per year. As a result nearly 35 million more hectares are harvested in China each year than in the U.S. (*bottom bars*). Shading on middle bars shows irrigated land: 33.5 million hectares are irrigated in China.



LAND UTILIZATION in China includes endeavors other than agriculture. Grasslands alone are almost twice the size of the arable land. Only some 20 percent of the land is so dry or mountainous as to support no significant plant life. Forests cover some 8 percent of the land. The largest land category, more than 30 percent of the total, is old grassland or forest that was stripped of timber and is now eroded. Some reforestation is in progress. These figures, based on estimates for 1963, are taken from a 1972 study by Chao Shih-ying.

...mical fertilizers. Some of the chemical fertilizers have been produced in ... and some have been imported. ...ded, China has recently become the ...rld's largest importer of nitrogenous ...tilizers: purchases abroad in 1973 ...me to 1.8 million tons. Of the nitrog...ous fertilizer produced at home near... 50 percent comes from small facto...ies that make ammonium bicarbonate, ...hich is 17 percent nitrogen, from lig...ite, or brown coal.

Ammonium bicarbonate is a com...pound that is rarely if ever used as fer...tilizer in the U.S. Nonetheless, Stavis ...stimates that in 1971 some 7.2 million metric tons out of a total of 16.9 million metric tons of fertilizer manufactured in China was ammonium bicarbonate. In 1972 the proportion was 9.9 million metric tons out of a total of 19.9 million.

Brady and Borlaug visited an ammo...nium bicarbonate plant near Shanghai. Operations had begun in 1959, and annual production was then some 800 ...ons of ammonia. At the time of their vis...t 15 years later the plant was producing 20,000 tons per year; 80 percent of the ...utput was being converted to ammo...nium bicarbonate, a fine white powder. The remainder was distributed as a fluid, aqua ammonia, with a nitrogen content of 42.5 percent. The aqua ammonia is transported by river and canal in boats fitted with concrete tanks; it is applied directly to the soil by adding it to irrigation water.

Other fertilizers manufactured in China include phosphates (made in both large and small factories) and additional nitrogenous fertilizers made in plants much larger in scale than the one in Shanghai. Comparing the total domestic production from all sources in 1972 (just short of 20 million metric tons) with estimates of production in 1964 (5.9 million metric tons), it is evident that in the eight-year period the supply of domestic chemical fertilizers has increased more than threefold.

The Chinese government has recently signed contracts for the installation of 13 or more plants designed to produce anhydrous ammonia; each plant has a daily capacity of 1,000 tons. That amounts to a potential annual production of at least 3.5 million tons. Each of the ammonia plants will be tied into a urea plant, where most of the anhydrous ammonia will be converted into solid nitrogenous fertilizer. It is projected that by 1978 the complex will yield 2.7 million tons of nutrient nitrogen; the feedstocks will come primarily from China's own supply of crude oil and natural gas. Although the capital investment, including the cost of pipelines and rolling stock, may go as high as the equivalent of $1 billion, China will have effectively insulated itself from the rising cost of fertilizer imports.

Another factor that has contributed to China's expanded agricultural output is the improvement and enlargement of irrigation systems. As I have mentioned, China has long been known for the high proportion of its arable land that is irrigated. Recent years have seen construction of many new diversion canals, catchment basins and wells equipped with mechanical pumps. We were given no official data on the extent of the increase in irrigated lands. One informal estimate, however, is that since 1965 five million hectares of irrigated land have been added to the previous total of some 33 million. Much of the effort to improve and enlarge existing systems is reportedly expended during winter months, when the demand for agricultural field labor is relatively slack.

One additional technological factor (which I have mentioned in passing with respect to individual crops) deserves summary here. That is the contribution made to increased productivity by the practice of multiple cropping. It is rare to see land lying fallow in any part of China where temperature and rainfall allow plant growth. In many areas that previously grew only two annual crops there are now three, for example rice-rice-wheat and rice-rice-barley. In other areas two crops are now raised where only one grew before, for example wheat-maize, wheat-sorghum and wheat-cotton. Furthermore, many combinations of intercropping and mixed cropping are under evaluation, and at the same time that larger amounts of fertilizer are being applied the density of plantings is being increased. The overall rise in intensive cropping has been made possible by the development and planting of high-yielding, quick-maturing varieties. With the increased application of fertilizers additional progress can be anticipated.

Another key element in China's agricultural endeavors is the human factor. It seemed to our group that, concerning both China's agricultural technicians and China's farmers, two separate questions arise. The first is just how effectively the government bureaucracy influences the activities of the 80 to 85 percent of the population who are engaged in agriculture. The second is a question that is quite as pressing elsewhere in the world as it is in China: Can the national birthrate be lowered before population growth cancels out the benefits of increased agricultural production?

On the question of bureaucratic control, in former times the lowest-level provincial officials directly answerable to the central government were the *hsien* magistrates (in our terms county administrators). Today the network of central control descends below the county level to the level of the traditional Chinese rural marketing community: the small town and its satellite villages. This unit, in current terminology, is the commune. Commune administrators are national cadres, that is, they are on the state payroll. Each commune includes a number of production brigades, which may be considered equivalent to groups of villages, each production brigade includes a number of production teams and each

[illegible] include [illegible] of [illegible] fields.

[illegible] the head of the production team [illegible] exercises the most direct influence over the individual farmer's life. The production team is the accounting unit that computes the "work points" earned by each individual and thus determines his share of annual income. At the same time provision of basic services at the brigade level, such as primary schooling and health care, means that each farmer and farm-family member interacts with this wider community almost on a daily basis. In the same way brigade leaders regularly interact with the local representative of central authority: the commune administrator.

Where agriculture is concerned this network of communication and accountability is an efficient instrument for the introduction and adoption of new technology. For example, each provincial agricultural research unit is integrated with the provincial farm population by means of what are called basic points. These are small agricultural experiment stations attached to selected production brigades throughout a province. Brigades selected under the system exemplify some typical environmental aspect of the province: a given kind of soil, a dearth or abundance of rainfall and so on. Each such station is manned by scientists and technicians "sent down" from their provincial research center and by farmers drafted from brigade production teams for training in experimental work; thus each province contains a network of [illegible] points. We observed the network-and-point agricultural-experiment method at work in two provinces, Kirin and Shensi.

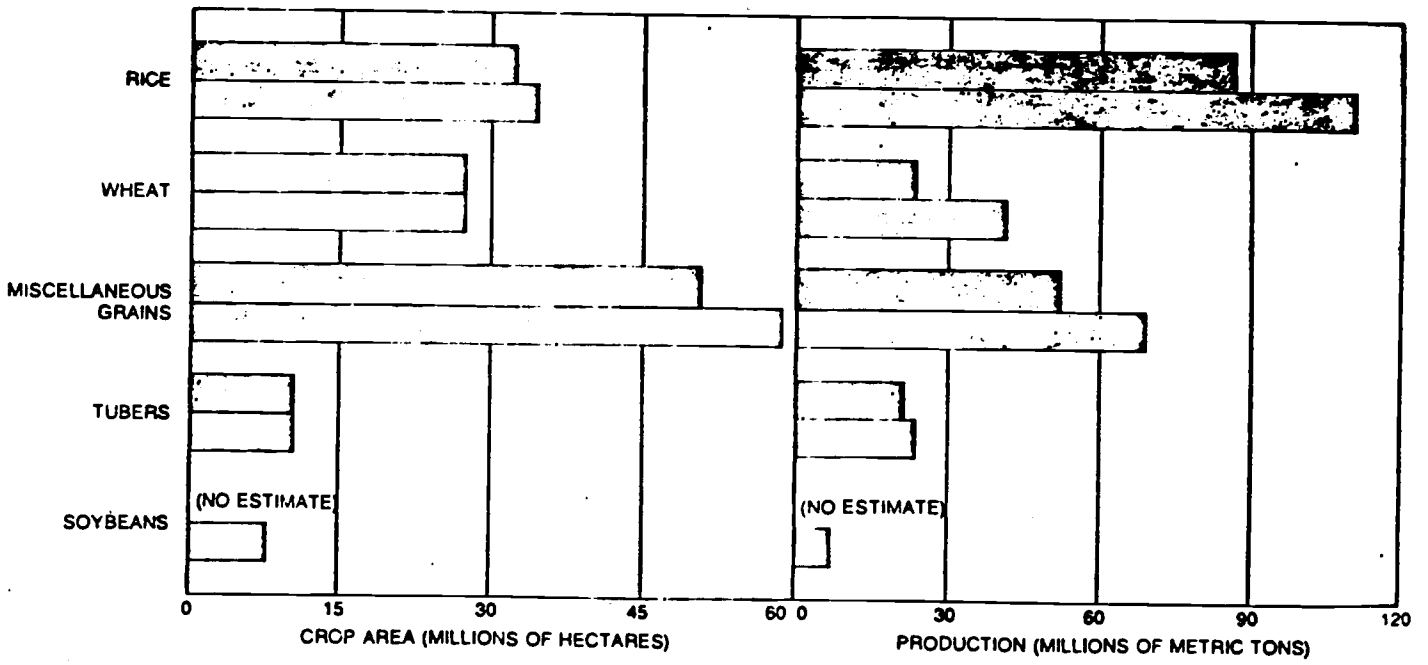
In Kirin the provincial Academy of Sciences of Agriculture and Forestry has a staff of 255 scientific and technical workers. Academy personnel work at experiment stations attached to 29 provincial production brigades. At any one time perhaps 80 members of the academy staff are manning the provincial network of farm-level experiment stations and another 80 are engaged in extension work involving communes that do not have experiment stations. Similarly, in Shensi personnel of the provincial agricultural institute reportedly work at 100 locations in 75 counties of the province.

The main theme of the experimental work at the brigade level is to develop improved systems of crop or livestock production suited to each particular environment. In addition some of the activity is not experimental but what we would call demonstrational. For example, improved practices are displayed in parallel with traditional ones.

The academicians who take turns participating in these brigade-level agricultural experiments are careful to stay in the background. (So are the other sent-down intellectuals, who devote the time they are required to spend in the countryside to promoting literacy among the farmers, posting wall newspapers and guiding political discussions.) Nonetheless, the academic agriculturists play a major role in introducing the farmers to progressive practices, just as American county agents did in the earlier decades of this century.

One cannot quarrel with the short-term practicality of this combination of applied research and demonstration work in China. It has obviously been effective in raising crop yields in all the areas we visited. The approach is not, however, free of long-term hazards. The interruption of basic research and the decentralization of experimental studies imposed by such a system cannot help but weaken the potential for future scientific advances in agriculture. Whether the Chinese will support their farm-level efforts with more basic research remains to be seen.

If China's present living standards are merely to be maintained, let alone improved further, the nation must avoid continuous population growth. An annual increase of no more than 2 percent means at least 18 million new mouths to feed, which requires an extra five million tons of food grains. There is good evidence that the birthrate in China's urban areas is beginning to decline sharply in response to government pressures [see "The Delivery of Health Care in China," by Victor W. and Ruth Sidel; SCIENTIFIC AMERICAN, April, 1974]. The size of China's urban population, however, is trivial compared with the size of the rural population. The key group that must be won over to a prompt and effective stabilization program is the farm labor force. That may already have been



SELF-SUFFICIENCY in agricultural production was announced by the Chinese with the harvest of 1971 (*gray*), when total grain production approached 250 million metric tons. Estimates of the area sown to various major crops and the amounts harvested are compared here with similar estimates for 1957 (*color*). Miscellaneous category includes millet, sorghum, maize, barley, buckwheat, oats and rye. Tubers are mainly potatoes. Most data are from the study by Benedict Stavis of Cornell University in 1974.

plished as a result of the establishment of certain new rural practices.

The first of these is related to household economics at the production-team level. Individual household members receive a share (in money and produce) of the annual earnings of their team; the share is proportional to the number of work points each has earned during the year. For example, a 70-year-old grandmother in a suburban Shanghai commune told me that she and nine of the other 10 members of the household worked regularly in the fields. The only nonproducer was a five-year-old child. The family received a monthly advance of the equivalent of $80 against its joint annual earnings. In 1973 its share of the team's income after operating expenses and taxes were deducted was $2,100, or about $200 per person.

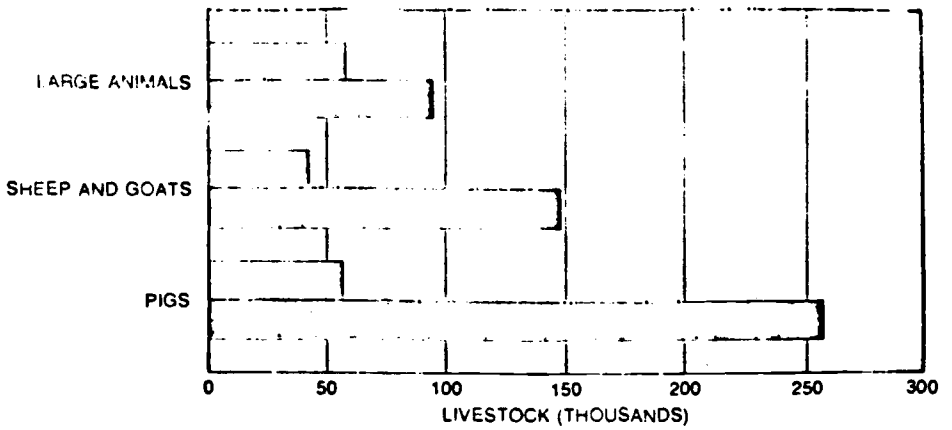
Withholding for taxes and expenses and to provide funds for reinvestment absorbs about half of the gross income of a commune. For example, the manager of the suburban Rainbow Bridge commune in Shanghai told us that 30 percent of the commune's gross income was required to meet the cost of its agricultural endeavors. Another 11 percent went into a fund for capital reinvestment, 4 percent was paid to the government as tax and 3 percent went into a welfare fund for the support of new mothers and the elderly. That left 52 percent of the gross income for distribution to individuals in proportion to the work points earned.

Such a work-point system simultaneously accomplishes two objectives. It provides a strong incentive for increased overall output in order to maximize the amount that is divided among the individuals in a household. At the same time it encourages householders and production teams alike to keep their numbers from increasing, so that the maximum earnings are divided into the fewest possible shares. The latter constraint, of course, places the disadvantages of population growth squarely before each individual. This economic consideration can generate substantial social pressure in favor of small families.

Other growth-limiting factors are at work. As one example, it is said that improved health care has greatly reduced infant mortality, thus undercutting the validity of the traditional view that many births are needed to ensure the survival of even one offspring to maturity. Another example is the current program of providing care for the aged, one of the objectives of the 3 percent welfare withholding reported by the Shanghai commune. We visited one such residence for the elderly, maintained by a commune near Peking. Normally, we were told, each family cared for its own elders. Nonetheless, some individuals inevitably lost their families or became separated from them; that was the case with the 75 residents we saw. They were encouraged to engage in handicrafts; meanwhile they were housed, clothed and fed at commune expense, and a clinic attached to the residence looked after their health needs. Custodial care of this kind, if it were widely practiced, would diminish the validity of another traditional view that favors multiple births: the view that one needs to have many children in order to ensure one's welfare in old age.

A third growth-limiting factor that may even now be undergoing a crucial test is the continued existence of private landholdings throughout rural China. We were told that when the commune system was established in the late 1950's, between 5 and 7 percent of the arable land in each commune was set aside for private use. The land was parceled out at a fixed rate: each adult in a household was assigned one 150th of a hectare. The household children received private land too, but only the two eldest children in each household were eligible. If a household had more than two children at the time of the land assignment, or if more children arrived later, those children received no share. In such a family there would simply be less private land per person. In its early days the allocation system probably had relatively little effect on rural family planning. Today, nearly a generation later, the system must act as a powerful social force favoring small families.

In summary, with respect to agricultural production in China now and in the near future our group was inclined to accept the government's assertion that self-sufficiency was achieved in 1971, when some 250 million metric tons of rice, wheat and other major foodstuffs were harvested. Furthermore, given a continuation of the present aggressive and coordinated effort it seems that China will be able to achieve substantial increases in agricultural production over the next decade. Whether the increase for any particular crop will be as little as 20 percent or as much as 50 percent will probably prove to be a function of present yields. For example, rice yields are already high, so that an increase of 50 percent in the annual harvest will be much harder to achieve than a 50 percent increase in the maize or sorghum harvest.



LIVESTOCK IN CHINA are compared according to categories; estimates, made by the U.S. Department of Agriculture, are for 1949 (*gray*) and 1972 (*color*). Sheep and goats are largely confined to grasslands and mountains in the west and northwest. That is also true of range cattle, lumped together here with large draft animals: horses, mules, donkeys and water buffaloes. Pigs are by far the most numerous of all the domestic mammals in China.

China nonetheless faces serious long-term problems. If the country's remarkable agricultural advance is to continue, two of these problems must soon be resolved. The first problem lies in the current Chinese policy that emphasizes applied and decentralized agricultural research for the sake of immediate increases in food production. Although the short term benefits of this policy are obviously important, the policy must be complemented in the near future by similar emphasis on more basic scientific investigation.

The second problem has to do with the government's remarkably comprehensive efforts to retard the growth of China's population. Only if this policy meets with success will the Chinese people continue to receive the benefits of increased agricultural production and the accompanying advances in living standards that so many of China's people now seem to expect.

FOOD ENERGY IN THE PRC *by Vaclav Smil*

Almost without exception, visitors on a short sojourn to the People's Republic of China (PRC) are impressed by the abundancy of food in evidence. Their observations on the food situation have generally been based on exposure to perhaps half a dozen of the country's largest cities and a handful of communes open to foreigners. In the light of what is a considerable consensus among travelers of widely varied backgrounds and professional expertise, a longitudinal quantitative evaluation of China's food energy availability and its comparison with likely requirements may be of interest.

Food Balance Sheets

The essential task in evaluating a country's nutritional situation is the construction of national food balance sheets which present a comprehensive, though generalized, picture of the pattern of food supply and utilization.[1] A food balance sheet must account for output, trade, and stock changes of all important vegetal and animal products; it must exclude non-food uses of these products (seed, feed, industrial manufacture) as well as losses which occur during storage and transportation. Finally, the sheet must incorporate appropriate extraction rates in all cases where some processing must be done before the product is ready for consumption. The resulting totals indicate the availability of individual foods as they enter the household and do not account for any subsequent — and difficult to trace — losses and distribution patterns.

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Construction of food balance sheets for the PRC is not easy even for the 1950's, a decade of relative statistical abundance. Liu and Yeh have incontrovertibly demonstrated that agricultural output figures for 1949-1955 were gross underestimates,[2] while the data from the period of the Great Leap Forward represented enthusiastic but dubious overestimates. Thus, only the years 1956-1957 can provide the basis for a more detailed evaluation of food energy in the 1950's, and the year 1957, which ended the First Five-Year Plan, was chosen for a construction of an itemized food balance sheet. For the 1960's such an exercise is exceedingly difficult due to the scarcity of any systematic statistics, food or otherwise. For the 1970's, however, sufficient information has become available or can be inferred to allow construction of a food energy sheet which would probably not be grossly erroneous. An attempt was made to do so for 1974, the twenty-fifth year of the PRC's existence.

Vegetal and Animal Production

Cereals, tubers and legumes, supplemented by vegetables, fruits and vegetal oils, are — as elsewhere in the developing world — the principal sources of food energy in China. Disaggregated 1957 output figures are available from official sources for most of the grain crops, for tubers, soybeans, oil seeds, sugar cane and beets and fruits.[3] No disaggregated statistics on principal crops have been recently released by Peking; however, at least two official figures are available for total 1974 "grain" output, the Chinese umbrella term for most food crops.[4] Chou En-lai's claim at the National People's Congress in January 1975 that grain output increased by 140 per cent between 1949 and 1974 translates into a total of at least 259 million metric tons (mmt). In November 1975, Vice Minister of Agriculture and Forestry Yang Li-kung (楊立功) put the 1974 harvest at 274.9 mmt. The latter figure has become widely accepted and is perhaps best interpreted as basically identical with Chou's claim, except that it included the soybean crop to increase the total.[5]

Starting with a rounded 275-mmt figure, the best available disaggregated estimates were used to construct a plausible breakdown of the 1974 cereal, tuber and legume harvest: the resulting 1974 values used as inputs in the food balance sheet are higher than the U.S. Department of Agriculture estimates and lower than those of the Food and Agriculture Organization (FAO).[6]

For all important seeds used for oil extraction (rape, sesame, sunflower, cotton), rounded FAO estimates were accepted for 1974; however, the FAO estimates of vegetable and fruit output were raised significantly because they do not include products cultivated in kitchen plots and small family vegetable and fruit gardens.

With the exception of poultry, complete 1957 official totals are available for important domestic animals;[7] in contrast, very little is known about the current numbers of Chinese livestock and fowl. However, recent FAO estimates seem acceptable and were used, with the exception of the estimate for pigs, as a basis for calculating China's meat production.[8] Official statistics for aquatic products are available for 1949-1958; the 1974 figure was derived from the latest FAO estimates.[9] Milk and egg output was estimated by applying

appropriate average production shares and average yields to cattle, sheep, goat and fowl counts.[10]

Domestic Utilization

To establish gross domestic availability of food crops and animal products, only essential large-scale trade transactions — imports of wheat, corn, sugar and soybeans, and exports of rice, sugar, soybeans and pig meat — were taken into account. Fairly good statistics are available for these imports and exports,[11] but other factors that must be taken into account in preparing the food balance sheet may easily be the source of major errors.

While it is not too difficult to determine the amount of harvested crops used for seed, there is considerable disagreement over the extent to which animal feeding in the PRC relies on grain.[12] Usage of crops for industrial manufacturing is of lesser importance in food calculation as it cannot account for more than 2 per cent of the grain total.

TABLE I

Principal Crop Totals and Assumptions for Food Balance Sheets

Crops	*Total Production*[a] (mmt)		*Seed*[b] (kg/ha)	*Feed*[c] (per cent of production)	*Waste*[d]	*Extraction Rate*[e] (per cent)
	1957	*1974*				
Rice	86.8	115.0	75	—	4	67
Wheat	23.7	37.0	105	1	4	75
Corn	21.4	31.0	70	12	4	80
Other Cereals	31.2	38.5	35-105	10-35	3-4	60-80
Sweet Potatoes	70.3	82.0	—	25	10	100
White Potatoes	13.5	28.0	760	20	10	100
Sugar Cane	10.4	25.4	—	—	4	12
Sugar Beets	1.5	5.6	—	—	5	14
Soybeans	10.0	15.0	105	6	4	14
Peanuts	2.6	2.7	90	—	4	40
Other Legumes	7.1	8.3	80-105	3-25	4	100
Oil Seeds	4.6	6.1	15-60	—	4	14-50
Vegetables	42.0	77.5	—	—	10	100
Fruits	3.3	6.1	—	—	10	100

Sources: (a) Nai-ruenn Chen, *Chinese Economic Statistics*, Aldine Publishing, 1967, Table 5.64, pp. 338-339; author's estimates based on FAO, U.S. Department of Agriculture and B. Stavis, "A Preliminary Model for Grain Production in China," *The China Quarterly*, No. 65 (March 1976), Table 2, p. 91.

(b), (c), (e) *Food Balance Sheets 1964-66 Average*, Rome, FAO, 1971, p. 134.

(d) Author's estimates.

TABLE II

Animal Totals and Assumptions for Food Balance Sheets

Animals	*Total Heads*[a] (millions)		*Take-off Rate*[b] (per cent)	*Carcass Weight*[c] (kg/animal)
	1957	*1974*		
Cattle	50.5	63.5	15	150.0
Buffaloes	13.1	29.9	10	170.0
Sheep	45.1	72.9	30	15.0
Goats	53.4	59.2	30	15.0
Pigs	145.9	250.0	70	55.0
Poultry	425.0	1,280.0	200	1.1

Source: (a) Nai-ruenn Chen, *op. cit.*, Table 5.65, p. 340; FAO, *Production Yearbook 1974*, Rome, FAO, 1975, Tables 102-104, pp. 208-216.

(b), (c) FAO, *Food Balance Sheets 1964-66 Average, op. cit.*, p. 134.

Very significant errors can occur in estimating crop wastage after harvesting. Losses during storage and transportation have been studied in different countries around the world[13] and, depending upon the specific crop and length of storage, they range from as little as 1 per cent to as much as 20 per cent, with most of the values for cereals between 3 to 4 per cent.

The most important production totals and utilization assumptions underlying the calculation of food balance sheets for 1957 and 1974 are listed for vegetal matter in Table I and for animal products in Table II. Complete food balance sheets give the country some 200 mmt of plant and 13 mmt of animal food in 1957; in 1974 these totals increased to just over 300 mmt and to 25 mmt respectively.

Food Energy Availability

Conversion of these tonnages into energy equivalents is a fairly straightforward procedure. All the main plant and animal foods have been multiplied by appropriate calorie contents taken from the best available listings of nutritional values, while for food categories consisting of a wide variety of items (vegetables, fruit, fish) the conversion factors were established by averaging the values of the most abundant foodstuffs within each group.[14]

The results of these conversions are given for all major food groups in Table III: they add up to nearly 485 trillion kilocalories (kcal) of food energy in 1957 and to almost 700 trillion kcal in 1974. Depending on which set of consistent population estimates (L.A. Orleans or J.S. Aird) is used,[15] these aggregates translate into 2,073 to 2,102 kcal per day per capita in 1957 and 2,070 to 2,256 kcal in 1974.

These differences in per capita consumption grow even larger when the food energy availability is considered in

TABLE III

Availability of Food Energy in China, 1957 and 1974

	1957		*1974*	
	Total Food (10^3 mt)	*Total Calories* (10^{12} kcal)	*Total Food* (10^3 mt)	*Total Calories* (10^{12} kcal)
Cereal Products	98,100	349.5	138,700	492.0
Tubers	48,700	46.5	69,400	64.5
Legumes	10,400	36.5	14,100	48.5
Sugar	1,500	5.5	3,400	12.5
Vegetables	37,800	7.5	69,700	14.0
Fruits	3,000	1.5	5,500	3.0
Vegetal Oils	1,250	11.5	1,800	15.5
Meat	7,000	18.0	11,300	27.5
Poultry	900	1.0	2,900	4.0
Fish	2,200	1.5	5,400	4.0
Milk	1,900	1.5	3,400	2.5
Eggs	500	1.0	1,500	2.5
Animal Fats	400	3.5	750	5.5
Vegetal Foods	200,750	458.5	302,600	650.0
Animal Foods	12,900	26.5	25,250	46.0
Total	213,650	485.0	327,850	696.0

terms of a range, rather than as a single figure: given the inadequacies of production data and utilization and extraction estimates it is, of course, impossible that any figures resulting from the construction of food balance sheets for the PRC could be error-free. Perhaps the best range is bracketed by values ± 5 per cent around the calculated figures. This would mean that the highest possible consumption, which combines high energy availability and low population, is 12 per cent higher than the worst combination in 1957, which pairs low energy availability and high population. In 1974, the differential between the highest and lowest consumption estimates is 20 per cent (Table IV).

International comparisons illustrate well the dimensions of this plausible uncertainty: the lowest consumption figure for 1957 would give an average Chinese marginally fewer kilocalories than an average Pakistani, while the highest value would be identical with per capita Japanese usage; in 1974 the lowest average would put the PRC

TABLE IV

Total and Per Capita Food Availability in the PRC, 1957 and 1974

	1957	*1974*
Total Food Energy (10^{12} kcal/year)	485 (460–510)	695 (660–730)
Total Population (millions)	632–641	844–920
Per Capita Food Availability (kcal/day/capita)	2,073–2,102 (1,966–2,211)	2,070–2,256 (1,965–2,370)

among the poorest developing nations, but the highest figure would bring it much closer to those large populous Third World countries which have, on the average, a relatively high food supply.[16] In view of this uncomfortably large — but very real — uncertainty, no unequivocal judgement can be passed on the nutritional status of the Chinese population.

Energy Requirements

The magnitude of average per capita calorie availability is not, in itself, sufficient to evaluate a country's food energy situation. Food supply must be compared with energy needs which are the function of age, sex, weight and physical activity.[17] Consequently, the average caloric requirements in the developing nations — whose populations have invariably much younger age structures and often lighter body weights than those of the developed countries — might be considerably below the typical European or North American requirements.[18]

None of the information necessary to calculate caloric intakes (data on age-sex distribution, average age-specific body weights and activity levels) is readily available for the PRC. There is only a single official age-sex pyramid based on the 1953 census. J. S. Aird has converted it to approximate absolute figures and has also constructed a series of alternative future age-sex distributions;[19] no original Chinese information has been published on this subject since 1959. Adjusted 1953 distribution was thus used for the 1957 calculation and the same age proportions were used for 1974, but the overall sex ratio was reduced to 102.0 from 107.7 in 1953.[20]

No age-specific weight tables based on statistically significant samples of China's rural and urban population are currently available.[21] However, typical adult weights in China — 60 kilograms (kg) for men and 50 kg for women[22] — are about 10 per cent lower than those of North American adults. Thus, reasonably representative values for the Chinese population can be derived by reducing the figures in the Harvard-Iowa age-weight distribution tables by 10 per cent and then dividing them into age groups relevant for energy requirement calculations.[23]

Finally, because basic energy requirements refer to moderately active populations at a given age and weight,[24] adjustments must be made for activities other than moderate: a multiplier of 0.90 is used for light activities, 1.17 for very active populations and 1.34 for exceptionally active groups. The corrected per capita requirements are then applied to an appropriate percentage of people in a given group who are not moderately active.[25]

Estimates of these percentages can be no more than very rough approximations. The assumption of FAO and the World Health Organization (WHO) that virtually all children and young adolescents (0-15 years) are moder-

ately active is reasonable as is the assumption that at least 50 per cent of both male and female populations above 60 years of age can engage in only light activities. The main source of possible error is the economically active population between 16 and 59 years of age.

A joint FAO/WHO informal gathering of nutrition experts concluded that traditional rural male populations should be considered *at least* moderately active and that moderate activity is probably the average for female peasant populations as well.[26] Energy expenditures in urban activities can vary considerably and it is impossible to suggest a meaningful average. However, as most of China's population — some 80 per cent[27] — is rural, and most of Chinese agriculture — at least 75 per cent — is still traditional[28] and rests on human and animal metabolism, there is very little doubt that a large proportion of rural activities falls into the heavy energy expenditure category.

Durnin and Passmore in their comprehensive work on energy needs put moderate work requirements between 5 to 7.4 kcal per minute (kcal/min) for men and 3.5 to 5.4 kcal/min for women, while heavy work demands 7.5 to 9.9 kcal/min and 5.5 to 7.4 kcal/min respectively.[29] When these ranges are compared with typical energy expenditures in traditional agriculture (Table V) it is apparent that many of the routine activities — especially when performed by women — fall into the heavy work category. So do other tasks which have become prominent in many Chinese villages since 1949: forestry (6.8 to 15.9 kcal/min), coal mining (4.2 to 8.0 kcal/min) and, in mountainous regions, carrying loads uphill.[30]

TABLE V

Energy Expenditures in Traditional Agriculture

Activity	*Kcal/min*
Weeding	3.8 — 7.8
Watering	4.1 — 7.5
Hoeing	4.8 — 6.8
Loading	5.0 — 6.5
Mowing	5.1 — 10.2
Ploughing	5.2 — 7.8
Ridging and digging	5.5 — 15.2

Source: J.V.G.A. Durnin and R. Passmore, *Energy, Work and Leisure*, London, Heinemann Educational Books, 1967, Table 4.10, p. 66, and Table 4.11, p. 67.

Moreover, large numbers of Chinese peasants are mobilized in the off-season months to repair or build irrigation systems and extend cultivable lands. These projects, depending as they do on massed human labor for deep digging, ridging, lifting and moving heavy loads, also demand exceptionally active populations.

Numerous regional and county reports on field levelling, terracing, canal building and irrigation projects have now become regularly available. During the winter of 1973-1974, such reports[31] mentioned the participation of 40 to 91 (average about 65) per cent of the work force. Eleven provincial totals adding up to 62 million people were available for water control works in the winter months of 1974-1975,[32] and a summary report on farmland capital construction claimed that at least 100 million people have been engaged in river regulation and earthwork every winter and spring since 1971.[33] In the light of this information

it would not seem unreasonable to conclude that about half of China's economically active population should be classified as very active.

Total caloric requirements based on population distribution, average body weights and activity levels described above add up to about 513 trillion kcal for a population of 632 million Chinese in 1957 and to some 683 trillion kcal for 844 million Chinese in 1974 (Table VI). If J. S. Aird's totals are used, the aggregate requirements rise only slightly for 1957, to about 520 trillion kcal, but the difference is quite significant for 1974: 745 instead of 683 trillion kcal. On the other hand, there is very little difference in total requirements if it is assumed that only 25 per cent of the adult Chinese population is very active: the totals are less than 2.5 per cent smaller.

Availability and Requirements

Comparisons of availability and requirement totals (Table VII) show

TABLE VI

Calculation of Annual Food Energy Requirements for the Chinese Population, 1957 and 1974

Age Group (years)	*Average Body Weight* (kg)	*Energy Requirements Adjusted for Activity* (kcal/capita/day)	*1957*		*1974*	
			Population Distribution (millions)	*Total Energy Requirements* (10^{12} kcal)	*Population Distribution* (millions)	*Total Energy Requirements* (10^{12} kcal)
Children:						
< 1		1,000	19.0	6.9	25.3	9.2
1 — 3	12	1,400	56.9	29.1	76.0	38.8
4 — 6	19	1,800	50.6	33.2	67.5	44.3
7 — 9	26	2,200	44.2	35.5	59.1	47.4
Males:						
10 — 12	34	2,600	19.7	18.7	25.6	24.3
13 — 15	48	2,200	19.7	15.8	25.6	20.6
16 — 19	57	2,900	22.9	24.2	29.8	31.5
20 — 39		3,000	98.4	107.7	127.9	140.1
40 — 49		2,800	32.7	33.4	42.6	43.5
50 — 59	60	2,700	26.2	25.8	34.1	33.6
60 — 69		2,100	13.1	10.0	17.0	13.0
70 +		1,800	6.6	4.3	8.5	5.6
Females:						
10 — 12	34	2,300	15.2	12.7	20.9	17.5
13 — 15	45	2,000	15.2	11.1	20.9	15.3
16 — 19	50	2,300	21.3	17.9	29.2	24.5
20 — 39		2,200	88.2	70.8	121.2	97.3
40 — 49		2,100	33.5	25.7	46.0	35.2
50 — 59	50	2,000	24.3	17.7	33.4	24.4
60 — 69		1,500	15.2	8.3	20.9	11.4
70 +		1,300	9.1	4.3	12.5	5.9
Total			632.0	513.1	844.0	683.4

the 1957 food supply to be at worst more than 10 per cent below the needed energy level and at best equal to it; the most likely situation would probably be a slight deficit of about 5 per cent. In 1974 the situation was either one of greater surplus or of basically unchanged deficit, depending on the population, food supply and food requirement data used in the process.

Possible deficits of this magnitude do not imply nationwide chronic malnutrition. However, because the foregoing calculations and comparisons all have been based on the theoretical uniformity of food consumption throughout the nation — an assumption which is obviously unrealistic in spite of the equalization efforts of the central government — such deficits would be strong indicators of regional problems. Even with a system of ideal distribution that leaves an energy surplus, it is difficult not to envisage the picture as a mosaic composed of some regions where the people are fairly well off, consuming more than their essential energetic balance requirements, and other areas of either chronic or recurrent shortages, where the food intake is, at best, sufficient to provide for basic metabolic and work needs but is not compatible with vigorous and healthy life or where, at worst, widespread malnutrition or chronic periods of hunger are not inconceivable.

TABLE VII

Comparison of Caloric Availability and Requirements in the PRC, 1957 and 1974

	1957	*1974*
Food availability (10^{12} kcal)	460–510	660–730
Food requirements (10^{12} kcal)	510–520	680–750
Availability/requirements ratio	0.88–1.00	0.88–1.07

Although the lack of information prevents a detailed evaluation of regional food supply disparities, it is possible to identify the poorest areas by comparing population and grain production shares. The provinces whose total 1957 grain output was proportionately smaller than their populations include Honan, Hopei, Shansi and Shantung (i.e., the whole North), Shensi, Liaoning, Kiangsu and Kwangsi; on the basis of available estimates it would seem that the 1974 pattern was very similar.[34]

Conclusions

Between 1957 and 1974 the PRC's population — and its caloric requirements — grew by a minimum of 34 per cent or by a maximum of 44 per cent, while the available food supply increased by about 43-44 per cent. In per capita terms these figures define a range from no improvement at all to a modest, but significant, 7 per cent increment. Because a comparison of food energy supply and needs strongly suggests a caloric deficit in 1957, the slightly better nutritional situation by 1974 was probably just sufficient to cover energetic demand. The composition of the average diet (vegetal vs. animal origin) does not seem to have altered significantly.

Too much is unknown and uncertain to offer any definitive judgement. However, unless the evidence presented is grossly erroneous, it must be concluded that China's per capita food energy supply in the mid-1970's was, at best, only marginally better than two decades ago. On the average, this is sufficient to satisfy energy growth, maintenance and work needs, but regional deficiencies

undoubtedly persist. Any improvement in Chinese nutrition that took place is probably the result of more equable food allocation rather than increases in farm output which have not significantly outpaced population growth.

NOTES

1. For details on the methodology of food balance sheets see: *Food Balance Sheets 1964-1966 Average*, Rome, FAO, 1971.

2. Ta-chung Liu and Kung-chia Yeh, *The Economy of the Chinese Mainland: National Income and Economic Development, 1933-1959*, Princeton, Princeton University Press, 1965, pp. 43-47.

3. Nai-Ruenn Chen, *Chinese Economic Statistics*, Chicago, Aldine Publishing, 1967, Table 5.64, pp. 338-339.

4. Any staple foodstuff (primary source of calories) is normally included in the Chinese definition of "grain": rice, wheat, and other small grains (all unmilled); corn, millet and kaoliang (coarse grains, unmilled); tubers (sweet and white potatoes, yams, cassava) counted at a quarter of their weight; and lentils (different types of peas and beans).

5. R. M. Field, "Recent Chinese Grain Claims," *The China Quarterly*, No. 65 (March 1976), pp. 96-97.

6. *Agricultural Statistics 1975*, Washington, D.C., U.S. Department of Agriculture, 1975, pp. 11, 25, 35, 41, 47 and 81; *Production Yearbook 1974*, Rome, FAO, 1975, pp. 41-190.

7. Nai-Ruenn Chen, *op. cit.*, Table 5.65, p. 340.

8. FAO, *op. cit.*, pp. 193-226; FAO estimated 239.193 million pigs for 1974, while a slightly higher rounded figure of 250 million was used in the food balance sheet.

9. For 1949-1958 figures see *Ten Great Years*, Peking, Foreign Languages Press, p. 100; FAO estimates are published annually in the *Yearbook of Fishery Statistics*, Rome, FAO.

10. Milk: 10 per cent of all animals producing and the annual yields of 300-400 kg/head for cows and buffaloes and 30 kg/head for sheep and goats. Eggs: 50 per cent of birds producing, 70 eggs/bird/year.

11. Data for 1974 are summarized in "China's Foreign Trade in 1975 (Part II)," *Current Scene (CS)*, Vol. XIV, No. 10 (Oct. 1976), Table II, p. 4, and Table VII, p. 8; FAO *Trade Yearbook 1974* lists at least a score of traded food items, most of them involving only minor tonnages.

12. See, for example, H. C. Champeau, "Five Communes in China," *CS*, Vol. XIV, No. 1 (Jan. 1976), p. 13.

13. For data summaries, see: *Bigger Crops — and Better Storage*, Rome, FAO, 1969; D. W. Hall, *Handling and Storage of Food Grains in Tropical and Subtropical Areas*, Rome, FAO, 1970. Most of the losses are due to insects, rodents and fungi.

14. Comprehensive listings of caloric values are available in *Food Composition Tables for International Use*, Washington, D.C., FAO, 1949; and in B.K. Watt and A.L. Merrill, *Composition of Foods Raw Processed Prepared*, Washington, D.C., U.S. Government Printing Office, 1963.

15. The latest estimates of both researchers are reviewed in L. A. Orleans, "China's Population: Can the Contradictions be Resolved?" in *China: A Reassessment of the Economy*, Washington, D.C., U.S. Government Printing Office, 1975, pp. 74-78.

16. Details on 1957 food consumption in the world's major nations can be found in *Food Balance Sheets 1957-59 Average*, Rome FAO, 1963; global nutritional status in the early 1970's is summarized in "Population, Food Supply and Agricultural Development," *Monthly Bulletin of Agricultural Economics and Statistics* (FAO), No. 9 (Sept. 1974), pp. 1-13.

17. For an authoritative treatment of energy requirements see Report of a Joint FAO/WHO *Ad Hoc* Expert Committee, *Energy*

and Protein Requirements (Joint FAO/WHO), Geneva, WHO, 1973.

18. The food energy supply in most of Europe, the USSR, Canada and the U.S. is in excess of 3,000 kcal/day/capita, much higher than the actual requirements.

19. For the 1953 age-sex distribution see J. S. Aird, *The Size, Composition, and Growth of the Population of Mainland China*, Washington, D.C., U.S. Bureau of the Census, 1961, p. 81; for alternative age-sex data through 1986 see J. S. Aird, *Estimates and Projections of the Population of Mainland China: 1953-1986*, Washington, D.C., U.S. Bureau of the Census, 1968.

20. Lowering of the sex ratio is in accord with virtually all variants of future age-sex structures calculated by J. S. Aird.

21. Only some fractional local figures about infant, children and adolescent weights were released by the Chinese in the 1950's; they have been summarized in J. Salaff, "Mortality Decline in the People's Republic of China and the United States," *Population Studies*, No. 3 (Nov. 1973), pp. 573-576; for a handful of recent figures see "Healthy Children," *Peking Review* No. 24 (June 14, 1974), p. 22.

22. These weights were used by the Chinese Academy of Medical Science for the calculation of recommended calorie intakes: R. O. Whyte, *Rural Nutrition in China*, Hong Kong, Oxford University Press, 1972, Table 10, p. 34.

23. For Harvard-Iowa tables see W. F. Nelson, ed., *Textbook of Pediatrics*, Philadelphia, Saunders, 1964, Tables 10-11, pp. 48-53; see also Joint FAO/WHO, *op. cit.*, Annex 1, pp. 100-101.

24. Joint FAO/WHO, *op. cit.*, p. 79.

25. *Ibid.*, pp. 80-83.

26. Joint FAO/WHO informal gathering of experts, "Energy and Protein Requirements," *Food and Nutrition*, No. 2 (1975), p. 13.

27. New China News Agency (NCNA) in English, *BBC Summary of World Broadcasts* (BBC), FE/W794/A/1 (Sept. 25, 1974).

28. The degree of agricultural mechanization in the 1970's is well reviewed by B. Stavis, "How China Is Solving Its Food Problem," *Bulletin of Concerned Asian Scholars*, No. 2 (July-Sept. 1975), p. 27.

29. J.V.G.A. Durnin and R. Passmore, *Energy, Work and Leisure*, London, Heinemann Educational Books, 1967, Table 4.1, p. 47.

30. Coal mining has become an especially important activity in many Chinese rural areas as roughly one third of the country's total raw coal output — and much higher shares in the southern provinces — is produced in communal or county pits.

31. BBC, W759/A/1-3, (Jan. 23, 1974).

32. BBC, W806/A/2-7 (Dec. 18, 1974), and W815/A/17-13 (Feb. 26, 1975).

33. "Farmland Capital Construction Achievements in PRC in Last 5 Years" Joint Publications Research Service (JPRS), No. 67649 (July 26, 1976).

34. Provincial grain output for 1949-1957 is summarized in Kang Chao, *Agricultural Production in Communist China 1949-1965*, Madison, University of Wisconsin Press, 1970, Appendix Table 13, pp. 302-303; population distribution in 1957 is in *Ten Great Years, op. cit.*, p. 11; 1974 population shares can be calculated from data in *Provincial Atlas of the People's Republic of China*, Peking, Cartographic Publishing House, 1974, and from current population claims summarized in "Provincial Population Figures," *CS*, Vol. XIV, No. 11 (Nov. 1976), p. 18. It should be noted that the Chinese have recently claimed repeatedly that all these "deficit" provinces are now self-sufficient in grain production and even have a surplus.

The Agricultural Development Programme

The Decision on Some Questions Concerning the Acceleration of Agricultural Development approved in September 1979 by the Fourth Plenary Session of the 11th Central Committee of the Communist Party of China is a programmatic document. A guide to our agricultural development in the new period of socialist construction, it has been made known to the whole country for implementation. Many readers have sent in letters asking what it is all about. Here is the gist of the decision. — Ed.

1. Towards a Unified Understanding of Agricultural Issues

Achievements. The socialist transformation of agriculture has been realized. Between 1949 and 1978:

Grain output increased 2.7-fold;

That of cash crops, forestry, animal husbandry, sideline occupations, fishery and rural industry increased to varying degrees;

A large number of water conservancy projects, big, medium-sized and small, were built;

AGRICULTURAL OUTPUT

Products	Unit	1949	1979
grain	10,000 tons	11,320	31,250
cotton	10,000 tons	44.45	240
sugar	10,000 tons	20	230
pigs	10,000 head	5,775	31,383

A large acreage of farmland was transformed;

And there has been a substantial increase in the use of chemical fertilizers, farm machinery, drainage and irrigation equipment and electricity in the countryside.

Problems. Acute contradictions have arisen in the last 20 years between agricultural development on the one hand and the needs of the people and the four modernizations on the other.

Between 1957 and 1978 our population registered an increase of 300 million whereas the area of cultivated land diminished due to expansion of the land area taken up by capital construction;

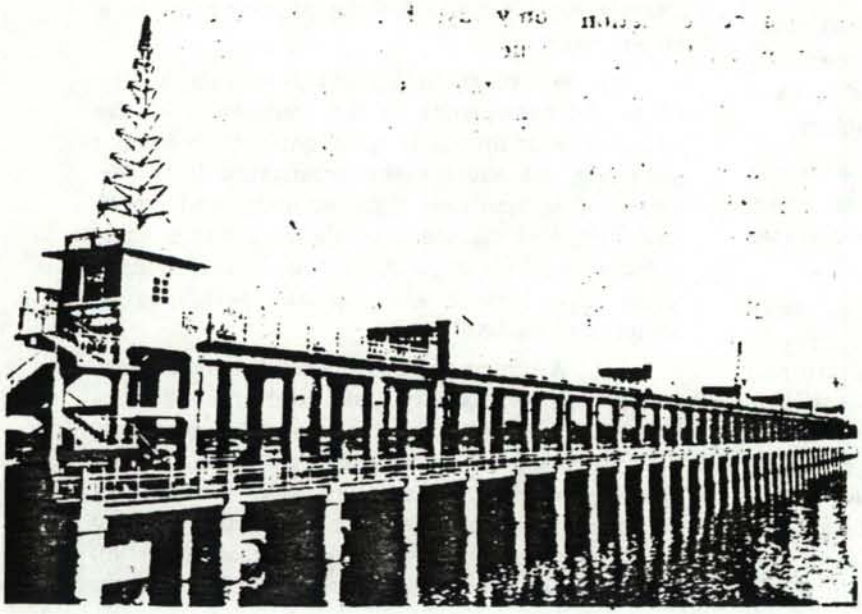
In 1978 the average per-capita share of food grain was only on a par with that of 1957;

The average per-capita income of the 800 million rural population was only a little more than 70 yuan per annum;

The collective property of a production brigade is valued at an average of less than 10,000 yuan; in some places the amount is not even enough for simple reproduction.

Twists and Turns. The course of agricultural development since the founding of the People's Republic has been tortuous.

This sluice gate on the Jiaolai River in Shandong Province has a flow that irrigates over 76,000 *mu* of farmland.



In the three-year period of restoration (1950-52) and the First Five-Year Plan (1953-57), the country-wide land reform was completed, the socialist transformation of agriculture realized and large-scale economic construction carried out; agriculture made notable progress. In those eight years, the average annual increase in the output of grain was 7 per cent. In 1958, which saw the establishment of the people's communes and the big leap forward, the masses, by emancipating their minds, dared to think and act; this revolutionary spirit of theirs was commendable. But due to lack of experience and failure to stay level-headed on the part of the leadership, we made the mistakes of giving orders blindly and doing things in a rash, haphazard way. This, plus natural disasters and the breach of contracts and withdrawal of experts by the Soviet Government, led to serious setbacks in agriculture towards the end of the 50s and in the early 60s.

However, thanks to efforts made by the whole Party and nation, we managed to overcome our shortcomings and mistakes in work and succeeded in tiding over the difficulties by 1962, thereby bringing about a rapid recovery and new development in agriculture.

During the ten years of Cultural Revolution initiated in 1966, Lin Biao and the gang of four pushed an ultra-Left line, subverted the various Party policies and the rural economy, thus dampening the initiative of the peasant masses. It was due to the resistance to the erroneous line put up by our cadres and masses that it was possible for agriculture to make some progress in the 70s.

Lessons. To speed up the recovery of agricultural production and its further development, we should draw certain lessons. In the main these relate to the following seven factors.

(1) We must maintain a political situation of stability and unity for a long time to come. This is a prerequisite for the four modernizations.

(2) We must understand and deal with class struggle properly. We must be firm in dealing blows at the class enemies who are still around in the countryside, who are hostile to socialism and are trying to sabotage it. But these constitute only a small number. It is impermissible to confound the two types of contradictions, which are different in nature — contradictions between ourselves and the enemy, and those among the people themselves. Nor is it permissible to enlarge the scope of class struggle according to whim; this can only damage unity and harm the innocent.

CONDITIONS OF AGRICULTURAL PRODUCTION

(Based on 1978 statistics)

Total power of agricultural machinery	160 million h.p.
Number of large and medium-sized tractors	557,000
Number of walking tractors	1,370,000
Number of big and medium-sized reservoirs holding 170,000 million cubic metres	over 80,000
Area of land under irrigation	46,670,000 hectares
Chemical fertilizer used per hectare	525 kilogrammes

(3) Efforts must be concentrated on the transformation of agricultural technique and the development of the agricultural productive forces on the basis of collective farming. This is the Party's basic line on the question of agriculture. We must develop capital construction in agriculture (including water conservancy, cropland, grassland, forestry, fishery and livestock breeding) and industrial enterprises in rural areas with a view to transforming the conditions of agricultural production and enhancing the peasants' material means for expanded reproduction.

(4) We must persist in carrying out the Party's rural policies for the present stage in a steady way.

(5) We must firmly carry out the policy of taking agriculture as the foundation of the national economy. In our national economic planning, we must make arrangements in the order of agriculture, light industry and heavy industry, and maintain a balance between agriculture and industry. All trades in the country must give further material and technological support to agriculture.

(6) We must correctly carry out the following principles, namely, "simultaneous development of farming, forestry, animal husbandry, sideline occupations and fishery" and "taking grain production as the key link, ensuring an all-round development, suiting measures to local conditions and concentrating on a certain line of production when appropriate." We must

gradually change the structure of agriculture and the composition of our diet.

(7) We must conduct agricultural production according to natural and economic laws, respect the democratic rights of the grass-roots cadres and the masses, and never give blind orders through administrative channels.

2. Twenty-Five Policies and Measures

In working out agricultural policies and measures, our starting point should be giving full scope to the superiority of the socialist system and arousing the initiative of the 800 million peasants. We must intensify socialist education among the peasants, be concerned about their material interests and safeguard their democratic rights.

The agricultural policy, the economic policy for the countryside and the measures for increasing production at the present are as follows:

(1) The ownership of the people's communes, production brigades and production teams and their power of self-management are to be protected by state laws. As long as they keep to the socialist orientation, carry out government policies, observe the laws and decrees of the state, and accept the guidance of state planning, all the basic accounting units under a people's commune have the right to cultivate whatever is suited to the season and to local conditions, to determine measures for increased production, to decide on the methods of management and to distribute their own products and cash income.

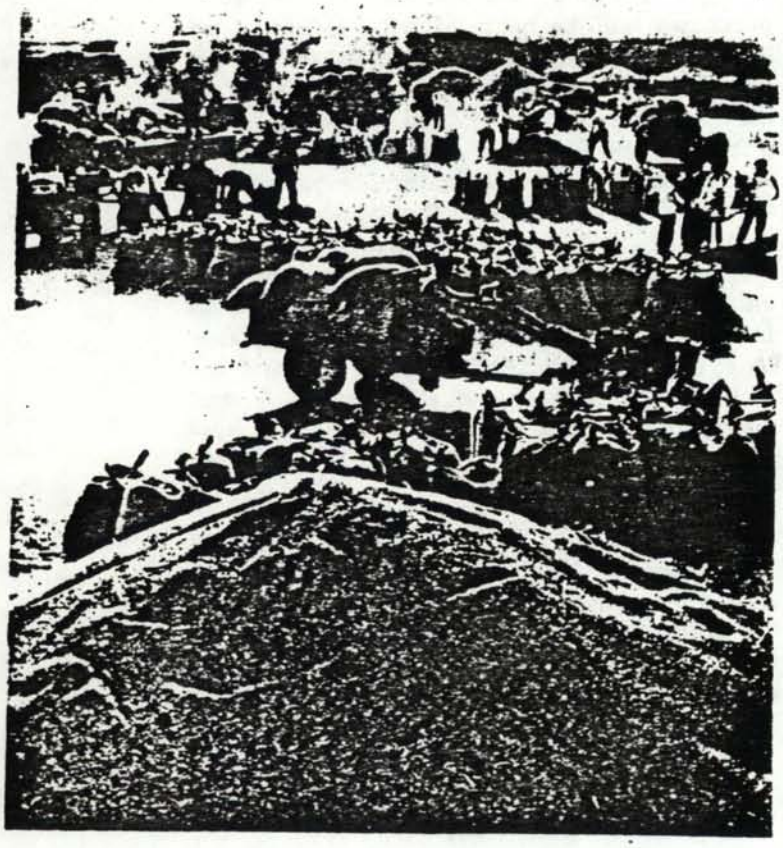
(2) The requisition or use of the labour power, land, draught animals, machinery, funds, products and other materials of a production team without compensation is not allowed.

(3) The economic organizations at all levels in a people's commune must carry out the principles "to each according to his work" and equal pay for equal work between men and women. The system of fixed quotas in production is to be strengthened, remuneration is to be paid according to the amount and quality of work done, a system of awards and penalization should be established and absolute equalitarianism is to be firmly corrected. With the development of the collective economy, more collective welfare undertakings should be set up and this work must be improved step by step so that the aged, the weak, orphans and those advanced in age who are living alone, disabled commune members, disabled ex-servicemen and dependents of armymen killed in active service will all be better ensured of decent living conditions.

(4) Land plots alloted to commune members for personal use, livestock for personal needs, household sideline occupations and rural trade fairs are supplementary and accessory to the socialist economy. Peasants are to be encouraged and helped to engage in household sideline production to increase personal income and activate the rural economy.

(5) The people's communes are to continue to stick to the system of three-level ownership with the production team as the basic accounting unit.* Transition from the production team to the production brigade as the basic accounting unit is not allowed unless con-

Members of the Chengnan Commune, Fengyang County, selling surplus grain to the state.



* The present three-level system of ownership of the means of production in a people's commune denotes the commune level, the production brigade level and the production team level. In most communes, the production team is the basic accounting unit; it directly organizes production and distributes its yields.

The Qianjin Commune in Danxian County, Guangdong, develops coffee trees and other tropical cash crops.

ditions are ripe and the majority of the team members agree.

(6) In the next three to five years, the share for agriculture in the entire capital construction investment by the state will gradually be upped to around 18 per cent. The share of expenditures on agricultural undertakings and appropriations in support of the communes, production brigades and teams will be raised step by step to about 8 per cent of the state's total expenditure. Local revenues should be used mainly to finance agriculture or industries serving agricultural production.

(7) Agricultural loans, from this year till 1985, will be more than doubled. The state is to issue in a planned way long-term special-purpose loans at a minimal or very low rate of interest, to be paid back in 10 or 15 years or even at the end of the century.

(8) The unified purchasing prices for grains will be up by 20 per cent when the summer harvest in 1979 is put on the market. The purchasing prices for extra grains outside the plan will be increased by another 50 per cent.

The purchasing prices for cotton, oil- and sugar-bearing crops, and animal, aquatic and forest products will be increased correspondingly. The ex factory prices and marketing prices for farm machinery, chemical fertilizers, insecticides, plastics used in farming and other industrial goods for farming purpose should be lowered gradually. The prices for grains sold to the public will remain unchanged despite the increase in the purchasing prices of the farm produce; the prices of other farm produce indispensable to the masses in their daily life too will basically remain stable. When certain products must be raised in price, the consumers will receive proper subsidy.

(9) For a fairly long period from now on, the amount of state purchases of grain from the peasants will remain stable; moreover, there will be a reduction of 5,000 million *jin* (one *jin*=0.5 kilogramme) beginning from 1979.

(10) We must continue to do a good job of the capital construction necessary for the production, storage, transportation and processing of the products of farming, forestry, animal husbandry, sideline occupations and fishery. By 1985, the area of irrigated farmland and the acreage of farmland giving stable, high yields will be greatly expanded. The state is to build more giant water conservancy projects while the various localities will mainly take up the construction of small and medium-sized water works along with projects supporting the main ones.

(11) Planned land reclamation. No state purchases will be made of what is grown on land newly opened up by communes, production brigades or teams for five years beginning from the first year of harvest. All industrial enterprises and mines should take measures to prevent contamination of the natural resources such as water resources and the atmosphere, or damage of agricultural production. No government organ, organization, armed force unit, enterprise, school or university is allowed to trespass on or make illegal use of cultivated land, grass and pasture land or forest land belonging to a commune or state farm. A land law should be made and enacted as soon as possible.

(12) Efforts should be made to run state farms well so that they will provide the state with more marketable grain, as well as more cash crops and other farm and sideline produce. Up to 1985, state farms are not required to hand over their profit, which is to be used for expanded reproduction and for transforming them-

selves into amalgamated enterprises combining farming, industry and commerce.

(13) We must quickly increase the production of chemical fertilizers, insecticides, plastics for farm use and various herbicides and guarantee their quality. Large quantities of peasant household manure should be collected and stored, more green manure grown and organic manure accumulated.

(14) Actively select and breed, import and popularize improved seeds. Quickly set up provincial, prefectural and county bases for seed cultivation and a network of seed companies.

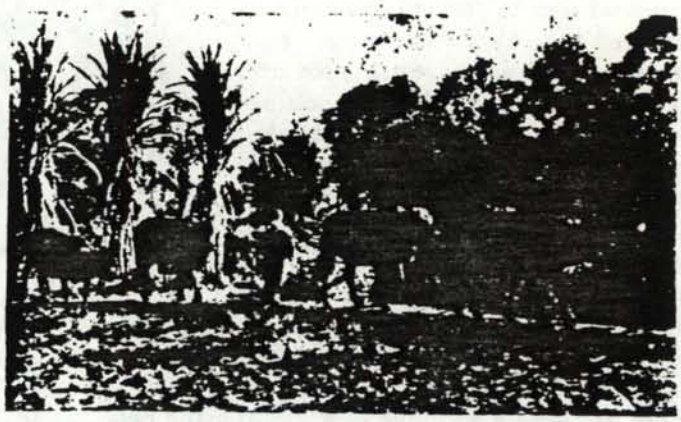
(15) Develop mechanization in farming, forestry, livestock breeding, sideline occupation and fishery, as well as in rural transportation and loading and unloading. The supply of accessories and spare parts for farm implements and machinery should be well ensured.

(16) Develop food and cash crops simultaneously; develop farming, forestry, animal husbandry, sideline occupations and fishery simultaneously.

(17) Plant trees for afforestation. Concentrate efforts on building a shelter-belt stretching from northwest China to north and northeast China. Emphasize tree-planting around farmland, along roadsides, around houses and along riverbanks in north China, on the central plains and in northeast China, concentrate on quick-growing timber in the ten provinces south of the Changjiang, as well as on economic forest bases in the south and the north and the forest areas in the northeast. The Forestry Law should be enforced to protect our forests.

(18) Enlarge the proportion of animal husbandry in agriculture. Pay special attention to developing the breeding of cattle, sheep, goats, rabbits and other grass-eating animals. Peasant households in the communes should be encouraged to raise pigs, cattle, sheep and goats, while livestock breeding by the collective should be developed. A number of modern ranches, poultry farms, slaughter-houses, deep-freeze plants, and factories processing animal products should be built in a planned way in China's pastoral areas and suburbs of big and medium-sized cities.

(19) Speed up fishery production and boost the output of aquatic products. Exploit water areas and lowlands along the coast and develop fresh-water and marine fish culture; readjust off-shore fishing and actively open up fishing grounds out at sea. Use advanced technology and equipment to modernize fishing and fish culture, processing, storage and transportation. Develop aquatic products culture on city outskirts and popularize fish and shrimp culture.



In Anfu County, Jiangxi Province, one in every four rural households now raises an animal.

(20) Bring about a big development of enterprises run by communes and production brigades*, gradually raising the proportion of the income from these enterprises in the total income of the communes, production brigades and teams. Farm and sideline produce which lend themselves to processing in the countryside should be gradually transferred to these enterprises for processing. Factories in the cities should in a planned way turn the manufacturing of a part of their products or parts to these enterprises, supplying them with equipment and giving technical help. A policy of low tax or tax exemption is adopted by the state towards these enterprises.

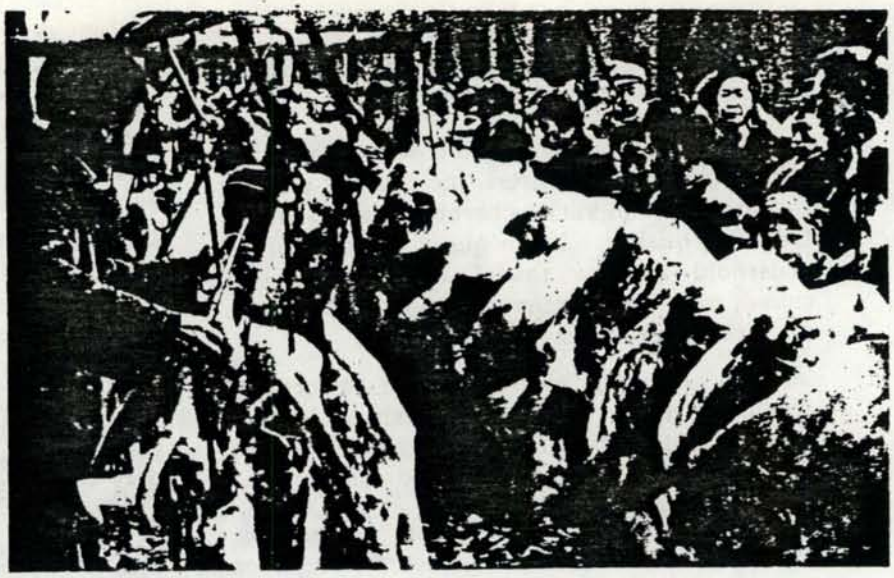
(21) Exchange commodities at equal value; facilitate exchange of goods between city and countryside. In purchasing farm and sideline products, prices should be geared to quality; the means of production and the means of subsistence needed in the countryside should be supplied promptly at reasonable prices, quality

* Many people's communes and production brigades now have their own factories and enterprises, such as farm machinery plants, cement works, brick and tile works and food processing mills. In many communes, revenues from these factories and enterprises now make up more than half of their total income.

guaranteed. Contracts should be signed for the purchase of grain, cotton, edible oil and other farm and sideline produce.

(22) Efforts should be made to develop the production of goods for export. The state has decided to allot a special sum in foreign exchange to finance the development of cash crops, native and special products, livestock breeding, sideline occupations, fishery and related processing industries in the provinces, municipalities and autonomous regions.

(23) For many years in some areas in the northwest and southwest, in a number of old revolutionary base areas, in remote mountainous regions, in areas peopled by national minorities, and in frontier regions, the yield has been low, there has been a shortage of grain and the people are poor. A special commission under the State Council is to be set up to give priority to these areas in financial, technical and material assistance.



At a rural fair where there is fresh pork galore.

(24) Continue efforts to carry out family planning, supported by publicity, education, medical service and supply of contraceptives. More effective measures and policies, mainly economic measures, will be adopted to bring down the nation's annual rate of population growth to around five per thousand by 1985.

(25) To protect and arouse the initiative of the cadres at the grass-roots level in the countryside is a highly important link in accelerating agricultural development. The wage problem and welfare of commune cadres and agrotechnicians should be solved step by step. Cadres who do their work well should be commended and given material awards. Cadres at the commune, production brigade and production team levels must all be elected by either a meeting of the commune members' representatives or a general meeting of the commune members; they should be subject to supervision by the masses.

3. Steps to Modernize Agriculture

(1) A large number of specialists with a grasp of modern agricultural science and technique, agricultural technicians and managerial personnel should be trained within several to a dozen or more years, while at the same time scientific, technical and cultural level of the peasant masses should also be elevated. The central authorities should be responsible for the proper functioning of the Chinese Academy of Agricultural Science and the Beijing Agricultural University; the provincial, municipal and autonomous regional authorities are to run well a number of agricultural research institutes, agricultural colleges and secondary agricultural technical schools.

(2) Promote agricultural mechanization in a planned way. Import, manufacture and popularize advanced farm machinery suited to China's special features to raise labour productivity. Build rural small hydro- and thermal-power stations; popularize the use of methane gas and utilize wind and solar energy. Provide irrigation and drainage for farmland and grassland by building water conservancy projects, so as to ensure high and stable yields. Speed up the development of chemical fertilizers, insecticides, herbicides and other chemicals for farm use and increase production of plastic sheets. In 1980 the departments concerned under the State Council will work out a long-term plan for agricultural modernization together with year-by-year plans for its implementation.

(3) Agricultural production must have a rational distribution and specialized production should be introduced step by step. In different regions, take measures suited to local conditions to bring about an even development of farming, forestry and animal husbandry. Organize a force to complete within three years a national survey of the natural conditions and resources and social conditions and work out plans for specialized production in various areas to be carried out step by step.

Ding Zhenya, a seed-breeding specialist of Mengcheng County, Anhui Province.

(4) Set up a number of key bases for marketable grain production, cash crops, livestock breeding, fishery and forestry. These bases will use advanced machinery and equipment, introduce scientific methods of production and management to become giant, modern, agricultural enterprises with high labour productivity and marketability. Some of them will also run industry and commerce and gradually expand into amalgamated enterprises combining farming, industry and commerce.

(5) Readjust the distribution of the nation's industry in support of agriculture in two to three years. The Ministry of Agricultural Machinery and the Ministry of Chemical Industry will set up a number of specialized companies and service companies to put the supply of farm machinery and chemicals, maintenance, hiring service and dissemination of technical know-how under unified management. Build highways linking urban and rural areas so that by 1985 motor traffic is accessible to every commune.

(6) In farm and animal produce centres, modern processing industries will be set up to facilitate supply and marketing in cities and the countryside.

(7) Planned construction of small towns in the nation's 2,000-odd county seats, and more economically developed towns or commune seats. Big cities should render stronger support to agriculture and build a number of satellite towns in their surrounding rural areas.

(8) Concentrate efforts on the construction of key projects. Farm machinery, money and materials for agriculture should go to key areas. In the first few years, if things are done successfully in areas comprising one-fifth of the population to bring about a marked increase in production and a rapid increase in the peasants' income, they will serve as an example for the rest of the country to follow and help promote agricultural production elsewhere.

4. Stronger Leadership

Party committees and governments at all levels from the central level down must give first place to agriculture, and really implement the Party's line, principles and policies. The Party branches in the countryside must be strengthened and they must see that Party members play an exemplary vanguard role. Agricultural production and construction connected with it should be managed independently by the administrative and vocational organs; the Party must not take over in this field.

The State Agricultural Commission is responsible for studying the principles and policies for the nation's agricultural production and, together with the State Planning Commission, gives leadership to the drawing up of long-term and yearly plans for agriculture, and makes arrangements for agricultural funds and the distribution of materials.

In working out plans, the planners must follow the mass line, make thorough investigations and maintain an overall balance. Except for what has been prescribed by law, administrative orders should not be issued to compel communes and production brigades to comply.

The style and method of work on the part of leadership must be radically improved. We must overcome such bad styles of work as approaching matters unrealistically, disregarding economic results, ignoring science and refusing to follow the mass line.

Cadres at all levels must not only study Marxist-Leninist theories but also acquire scientific, technical and economic knowledge, learn advanced methods of agricultural management and become experts.

CHINA'S 10-YEAR PROGRAM FOR THE DEVELOPMENT OF AGRICULTURE AND THE NATIONAL ECONOMY (1976-85)

Chinese Premier Hua Kuo-feng (華國鋒) delivered a wide-ranging Government Work Report on February 26 to the National People's Congress (NPC). Published eight days later, the report acknowledged agriculture as the "foundation of the national economy" that without accelerated growth would stymie the "upswing" in industry and the whole economy.

Hua's report disclosed that a 1975 conference met to draft a 10-year Program for the Development of the National Economy (1976-85) on the basis of large-scale investigations and research that had been made for that purpose. The program, however, was sabotaged by the "gang of four." After their downfall, further studies of the draft program were made, appropriate changes were incorporated, and the revised draft was submitted to the NPC. Except for two items — grain and steel— none of the other targets were disclosed. The highlights of the program's plan for agriculture and those in Hua's report that are related to agriculture are presented — with analysis — in the discussion that follows.

The program's grain target for 1985 is 800 billion catties, that is, 400 million metric tons (mmt). The average annual growth rate of the gross value of agricultural production between 1978 and 1985 is targeted at 4% to 5%. Grain is the bulk of agricultural production in China. Thus, the average annual rate of increase in grain production would be, by and large, in the same range as that set for the gross value of agricultural production. At the targeted annual increase, the total increase in grain by 1985 would be between 36.86% and 47.75% compared with 1977. On this basis, grain production for 1977 can be derived at between 270.7 mmt and 292.3 mmt; the mean would be 281.5 mmt. Last December's *China Reconstructs* gave a figure for grain production in 1949: 113.2 mmt. This obviously includes

soybeans. From this it follows that the targeted 400 mmt for 1985 and, for that matter, the derived figure for 1977 should both include soybeans.

In the 11 years from 1966 to 1976, despite "gang of four" interference, one-third of the provinces, municipalities, and autonomous regions managed to achieve an average annual 4.3% rate of increase in grain output; some achieved a 5.5% growth rate. Now, Hua reasoned in his report, freed from the "gang of four" the country as a whole should be able to achieve a 4%-5% increase each year during the next eight years.

Hua's comment is a clear indication that grain production is taken in China as a parallel to the gross value of agricultural production. The annual rate of increase he called for is admittedly a cautious target compared with ones set during the Great Leap Forward or even during the more sober years of the early 1970s. What will probably occur is that as more inputs (more pumps and machinery, fertilizer, and improved seeds) become available in the early 1980s, the targeted 4% to 5% annual increase will begin to be achieved.

According to Hua, by 1985, the area of stable, high yield land would be equal to one *mou** per person in the rural population; by 1980, one-third of China's counties will be Tachai-type ones.

While the number of Tachai-type counties by 1980 is the same as the one in Hua's report at the First National Conference on Learning from Tachai in 1975, the target year for the building of stable, high yield land per mou per capita of the agricultural population has apparently been pushed forward to 1985 from the 1980 declared by Ch'en Yung-kuei (陳永貴) in 1976 at the Second National Conference on Learning from Tachai. Deferring the goal is perhaps a change introduced into the revised draft program and as such would appear to illustrate cautiousness and pragmatism on the part of Chinese planners.

Hua said in his report that China would strive to keep its natural rate of population increase within 1% in the next three years. Should this low rate of increase be reached by 1980, the deferment of the target year would involve only a maximum of 5% increase in the absolute acreage of stable, high yield land targeted for 1980. This, then, will allow builders of stable, high yield land to reach a slightly higher goal in eight instead of the originally scheduled three years.

In his report Hua stipulated that by 1985 the 12 large grain-producing base areas together with the state farms should double or triple the volume of grain available for marketing. Assuming that 30% of the grain produced in these areas has generally been sold to the state in the past, doubling or tripling that amount by 1985 would mean that 60% and 90% respectively must be marketed, taking the present level of production as 100%. If the population in those areas increases 10% by 1985, they must raise grain production by 40% by 1985 to double their grain sales to the state. The annual rate of increase would then be somewhat less than 4%. To triple their sales, they will have to push up production by 70% by 1985, an average annual rate of increase of more than 8% — a much more difficult goal to attain annually for eight years. From these targets for the major grain producers, Chinese authorities appear to be reverting to the

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* one mou = 1/6 of an acre, or 7,260 sq. ft.

policy of the early 1960s that concentrated state aid and supply of inputs on the major bases where the yield levels are high and the conditions are more responsive to increased inputs.

The low-yield, grain-deficit areas should strive to achieve self-sufficiency or a surplus in the next two or three years. Judging from this target, all the areas in the country should achieve self-sufficiency by 1980. Poor areas like Kweichow and Tsinghai may have a difficult row to hoe if they are to achieve grain self-reliance in the next two or three years. On the other hand, a rich area like Chekiang, which is heavily burdened with a large population, may easily lose its grain self-sufficiency should unusually poor weather conditions occur in any particular year. Unless substantial yield increases are achieved in the next two or three years in the marginal areas, self-sufficiency in grain in these areas can hardly be sustained.

The ten-year program seeks to establish base areas for the production of cotton, oilseed, and sugar crops, which will become the major source of these commodities for state procurement. This plan to set up base areas for industrial crops would seem to spell a degree of regional specialization despite a policy of regional self-sufficiency in basic needs. It would be difficult, however, for these areas to achieve significant success as major industrial crop suppliers unless they are assured the state will meet their grain needs. Growing grain sufficient for their own needs would weaken their capacity to increase production of industrial crops. How the state intends coping with this dilemma is unclear.

A number of other measures to increase farm production in general were also mentioned in Hua's report. Among them is land reclamation. New state farms are to be opened (which would mean reclamation on a large scale). Land reclamation will also be done at lower levels (provincial, prefectural, county, and commune levels) in a planned way so as not to interfere with soil conservation goals. Putting new land under cultivation is one way for China to increase farm production, but it is very expensive and in some cases could result in increased erosion. These two problems must presumably be solved before large-scale land reclamation can be carried out.

More state investment in large-scale water conservation programs is slated over the next eight years. A major goal is to bring more water from the south to the north, and amelioration of the soils in low-yield areas will be given attention. So far, the PRC has been successful in bringing water from the Yangtze to limited areas in the lower reaches of the Huai River Valley. Nothing has been done in the middle or the upper reaches due to the magnitude of the engineering involved. The improvement of low-yielding soils takes time — eight years may not be enough.

Agricultural research will be strengthened, particularly the breeding of superior crop varieties, searching for more sources of organic fertilizer, and studying rational ways of applying chemical fertilizer. As Chinese scientists spend more time on research without having to labor for long periods in the countryside, more and better results will be achieved. Nevertheless, it takes several years to develop a new variety. The stress on organic fertilizer appears to mean that China will continue to rely on organic fertilizer as the major source of plant nutrients.

More farm machines are to be made available in the next eight years. By 1985 then, some 85% of major farm operations are scheduled to be mechanized. Chemical fertilizer and agricultural chemicals are to be increased.

The mechanization of 85% of important farm tasks compares interestingly to the 70% that are to be done by machine by 1980. With five more years allowed, the former figure appears a more pragmatic goal than the 70% one. The association of chemical fertilizer and agricultural chemicals with farm machines again indicates that in the Chinese conception of farm mechanization fertilizer and pesticides are included.

To attain its agricultural goals, the government will increase appropriations and material and equipment allocations. The state also is aware of the importance of high peasant morale, without which agricultural output increases cannot be achieved.

Measures to boost the morale of the peasants include encouragement of sideline production and brigade- and commune-run enterprises. Income from these sources will account for an increasing proportion of the peasants' total income. As a result of disrupted sideline production over the past several years, cash income was substantially reduced. State aid will be given to the poor brigades so that they can improve their financial status within a short period of time. Moreover, commune members are allowed to keep their private plots and run family sideline businesses, and rural free markets are permitted. These latter measures are a return to pre-Cultural Revolution practice.

The state-fixed purchase price for farm products will be appropriately increased, and parity between the price of agricultural products and that of industrial goods will be studied and further adjustments made. If farm prices rise and the price of industrial products, especially those needed in agricultural production, fall, commune income will gradually increase while the costs of farm production will be reduced. Eventually the rural-urban gap in standard of living will be narrowed.

According to Hua, the principle "to each according to his labor" should be further enforced, workpoints registered in accordance with the labor done, and "equal pay for equal work" applied without prejudice to women. The work-quota system should be reinforced. The government hopes that under normal conditions 90 per cent of the commune members will have an increase in income every year.

While commune officials are prevented from getting workpoints without actually working, the greatest advantage accrues to those families with a large work force. A family with only one farm laborer may find it difficult to make ends meet, even though he has completed his labor quota. Furthermore, if an increase is allowed for members' income in an average year, the collective, i.e., the commune or brigade, will be short of the money needed for further investment in production.

Other morale boosters slated to be in effect by 1985 are an eight-year education for rural children (10 years for urban ones) and improved rural (and urban) housing.

In the coming years, large numbers of youths will be sent to the countryside.

How welcome on the communes these additional mouths will be is unclear, but too many additions could be perceived by the peasants as eroding newly won economic gains. Thus, their presence may not be much of a boost to commune morale. The youths' morale, however, should benefit from spare-time education that is to be provided in the rural areas so that they can further their education during leisure hours. Examinations will be given to see if any of them are qualified for a higher post. Due promotion will be given to those who have proved themselves thus qualified.

In sum, the target set for grain in 1985, while ambitious, is attainable. Although the measures planned to implement the program are not new, morale in the countryside apparently is greatly improved. Should China's weather be normal or better than normal in most years between 1978 and 1985, the targeted 400 mmt of grain in 1985 stands a good chance of attainment.

China Exchange News, Vol. 8, No. 1, February 1980, p. 16.

FAO-PRC COOPERATION

FAO, the Food and Agriculture Organization of the United Nations, has over the past few years established a well-developed program of exchanges with China. Since 1973, when the PRC renewed its membership in FAO, collaboration has taken place in a number of different areas. China is now a major contributor to the FAO and has shown an eagerness to participate in FAO technical seminars and training programs and to participate in technical assistance activities.

FAO programs in China consist of three main types including technical missions; study tours, workshops, and training programs; and fellowships in China. Technical missions to China, which actually began in 1972, have been conducted in such diverse areas as water buffaloes in China, freshwater fisheries and aquaculture, forestry, grain post-harvest technology, and commune management.

Study tours, workshops, and training activities sponsored by the FAO in China have been largely financed by the UN Development Program (UNDP) and have included participants from up to 14 FAO member countries in a given tour as well as FAO technical personnel. Since 1977 several such tours have taken place, some emphasizing regional interests and others stressing common inter-regional problems. Among the topics explored have been a variety of agriculture, forestry, and aquaculture related subjects, soil and water conservation and management, biogas production and use, and agricultural processing technology. In 1980 the program will include 12 study tours, workshops, and training courses involving some 240 participants from developing countries in Asian, Africa, Latin America, and the Middle East. Topics covered will be in areas similar to those mentioned above. In addition to these groups, a number of single-country delegations have also visited China under FAO and UNDP sponsorship. These have so far been dominated by groups from Nepal, although Ethiopia and the Philippines have also participated, and have focused on such areas as hill irrigation, soil and water conservation, and multiple-use mountain forestry development. Additional groups of this type will travel to China in 1980.

The FAO fellowships program for training in Ch was confined until 1970 to freshwater fisheries. Sin 1975 it has provided training for more than 100 fis eries technicians from more than a dozen countries i Asia, although more recently it has primarily benefite fellows from Sri Lanka and Bangladesh. Discussions ar underway for major UNDP/FAO assistance for develop ment of a new permanent training center in China in freshwater fisheries and possibly in sericulture.

Chinese participation in other FAO programs takes several forms, the first of which being participation in FAO's governing bodies and technical meetings. The vice chairman of the FAO council is Chinese and in 1979 Chinese representatives attended the World Fisheries Congress and the World Conference on Agrarian Reform and Rural Development. China has also sent technical missions abroad which were organized and financed by FAO. In 1978 Chinese technical missions covered the areas of olive production and processing ar seed processing. In 1979 China sent a study tour to examine drying equipment for cereals.

Finally, cooperation between China and the FAO ha included visits by Chinese experts to FAO Headquarter in Rome. Five senior Chinese soil scientists spent a wee with FAO technical staff in Italy during 1978. In 1979 four Chinese specialists arrived for discussions on food policy and nutrition. Permanent representatives from China included a fisheries specialist who joined the FAO professional staff in Rome in October 1979 and a plant protection expert who is now on the FAO staff at its Regional Office in Bangkok.

It is envisaged by both sides that FAO-Chinese collaboration will expand greatly over the next few years as increased funding becomes available.

FIRST FAO PROFESSIONAL STUDY MISSION TO CHINA: SOME PRELIMINARY OBSERVATIONS 1/

The Chinese approach to agricultural development today bears a unique stamp.

A revolutionary leadership seeks to marshall the resources and the talents of a frugal, hardworking people to raise, within a telescoped span of time, both productivity and output, in a land seared by a history of extreme deprivation.

The approach that has been designed reflects a response to the need to produce additional food. But they also show the leadership's perception and decision that, in China today, priority be given to agriculture as the foundation for all development.

"Agriculture is the foundation, industry the leading factor," states the Constitution.

To implement this approach, the policies of agricultural resources mobilization that have been drawn up are so all-encompassing that the only comparable image that comes to mind is that of a war. The Chinese approach constitutes a total war for agricultural production --- against backwardness, underdevelopment and poverty. "Every crop is a battlefield," one commune leader told us.

A closer analysis of the Chinese approach reveals that it apparently consists of three basic elements. These are:

1. Self-Reliance: This is the basic philosophy that permeate all aspects of life. Basic food supplies are to be met from domestic resources, using all available indigenous technology.

2. Priority Attention for Basic Needs: The basic drive seeks to eliminate poverty, mobilize the masses and organize the countryside more efficiently to absorb the shocks of natural calamities.

3. Agricultural Growth: Policies are to ensure that the momentum of agricultural growth is maintained and increased. Production targets are set but there is a history of these targets being exceeded oonstantly.

Chairman Mao sums this up by saying: "We cannot just take the beaten track traversed by other countries ... and trail behind them at a snail's pace."

It is within this context that many of China's priorities and techniques can be understood andperhaps appreciated better.

As seen by our team, these are some of the significant components of the Chinese approach.

1/ Team Members: Dr. D.L. Umali, Dr. H.A. Al-Jibouri, Mr. G.C. Clark, Miss M. Crowley, Mr. C. de Fonseka, Mr. T. Lehti, Mr. P. Mengin, Dr. C.P. Pillai, Mr. Thet Zin

Duration of Mission: 8 September to 7 October 1975

Agriculture --- The Priority:

China's agricultural development pricrities are sharply defined. "Agriculture is the foundation of agriculture." Unremitting use of the extensive communication system has made every citizen aware of these priorities --- often expressed in short, pithy slogans."

To the casual visitor, these slogans written in ideographs and broadcast everywhere, present a bewildering spectacle. But there is a sound communication principle behind all these: The axioms are concise presentation of policy. They are easy to convey --- and to remember, We have the definite impression that slogans in China do not have the connotation of gimmickry; they are accepted means for communicating the party line or policies.

Resource Utilization:

Cina is a land of no waste. Every available resource is carefully conserved and used. Waste runs against the ethical grain. This approach covers land use, water, manpower, organic residues, industrial plant capacity, etc.

Each available sliver of land is cropped. New arable land is being created through terracing, levellingof hills, etc. Even rooftop plots are used. In many provinces, a cropping index of 2.85 has been attained. What cannot be used for agriculture is reafforested, "Cover the country with trees," people are exhorted.

China today is not "creating jobs" as is often stated. The country's employment policy stems from its overall policy of resource utilization: Every available pair of hands is used for production. The team, for instance, saw children picking straw to be used for fodder and compost after school hours. However little one may contribute, the reasoning goes, will increase the size of the cake. Every citizen is entitled, under the system, to a slice of this cake.

The soil is carefully nurtured. Yearly, enormous amounts of compost and organic material are returned to the soil. Availability of chemical fertilizers is still limited. Use of the organic manure, therefore, may constitute an important "buffer" against shortages in the battle for higher yields. It is our impression that the quality of the soil is improving due to this care. "There seems to be a love affair between the Chinese farmer and the land" is the way one of our team members put it.

In all areas visited by the team, bodies of water were either controlled (irrigation, drainage), conserved (rainwater ponds and reservoirs) and/or utilized (fishponds and fertilizers source).

There is sustained emphasis on water conservation and use. Rain-fed farming is abandoned as soon as irrigation becomes available. China seeks produotion patterns that reduce nature's whims.

River Harvest:

The Chinese seem to have perfeoted the art of utilizing rivers and irrigation oanals for purposes other than transport and water supply. These are now being systematioally tapped for raising food, organio matter, feed soil amelioration, fish, ducks and geese.

Water ohestnuts are used for food; water hyaointh and water lettuoe oonverted into pig food and compost, duoks, geese and fish are raised while the silt and mud from oanals are used as manure to build up the land for growing upland crops.

These "river harvests" have made possible impressive yields through the diligent applioation of simple teohnology.

Self-Relianoe:

This is one of the oornerstones of China's development polioy.

Insistenoe on relying on national and looal resouroes, initiatives and talents runs through the whole system. This polioy is manifested in all spheres. This ranges from finanoe to engineering and efforts by every rural produotion unit --- be it people's oommunes, state farm or researoh institute --- to produoe its own food grain, fiber, edible oil, build its silos or wells, eto.

Development Administration:

Partly as a oorrollary to this all-pervasive prinoiple of self-relianoe Chinese development administration is deoentralized to the lowest level. There is a unified national programme; but oonsiderably leeway is given to local units to plan and manage within that framework.

The state has thereby divested itself of a vast amount of administrative and finanoial burdens. It has enoouraged looal problem solving. The tendenoy, oommon in many oountries, for people to lean on central govern ment as a orutoh is sharply minimized as state power and responsibility passes into the smaller produotion units at the lower level.

Planning Methods:

Under the rural administrative struoture, the basio unit --- the produotion team --- is very small: 10 to 30 families. For all purposes, it is an extended family and farm. Planning methods tend to be flexible and realistio. The organization of the people's oommune into Brigades and Teams provides a workable meohanism for seouring the full partioipation of farmers in the planning --- and implementation.

The two-way planning dialogue, speoially within the range of the produotion team to the oounty level, is vigorous. This makes possible realistio, flexible and pragmatio mioro-planning.

From the state's point of view, this deoentralization is faoilitated by the presenoe of the Party Committee at all levels down to the produotion team. This ensures that the oorreot line is grasped.

The "three-in-one" principle provides linkages in all planning and problem-solving activities. The "three-in-one" linkage operates in two-dimensions: (a) the old, the middle-aged and the young; and (b) the Party cadres, technicians and peasants/workers. These seem to produce satisfactory results.

This structure rests on the concept of relying on "the wisdom of the masses." It reflects a belief in the ability and capacity of ordinary people to plan and implement.

Communes and Integrated Rural Development:

The team noted that the communes significantly mesh both management and production functions. This has, therefore, permitted an effective blending of agricultural and industrial growth tailored to the different resources of each locality. The system is based on comprehensive area development. It has buttressed, with positive economic incentives, the existing policies to discourage the flow of people into urban areas and hold them instead on the land.

Chinese development tends to be pragmatic. When mistakes are made, they are openly recognized and quickly rectified. The decentralized nature of the communes enables the system to respond quickly to practical needs and immediate problems where they arise.

The communes are not an overnight creation. They are the result of lengthy experimentation with various forms of collectives. During this period, the countryside moved, partly for ideological reasons, and partly in response to immediate problems, through the stages of Mutual Aid Teams, Primary Cooperatives, Advanced Cooperatives, and in 1958, to People's Communes. The communes are still undergoing refinements.

Food Security:

Great emphasis is placed on the need to store grain, in preparation of natural calamities or the event of war. "Dig tunnels deep, store grain everywhere, and never seek hegemony."

Grain in the Chinese view is of crucial importance. "Take grain as the key link and ensure all around development." Yet, its stockpiling is not an exclusive government function but is decentralized and dispersed. Grain is stored by families, by Teams, by Brigades, by Communes and from county to state levels.

There is also effective state control over sale and distribution of food grains. Along with edible oil and cotton, grain is a controlled item, wastage is minimal. Speculative hoarding of grains does not exist.

"Taming Nature" Approach:

Two of the major approaches the Chinese use on the issue of crop output and productivity are: attempts to modify nature through mobilization of the masses and applications of available technology.

They have drilled wells in rocky places, carved out mountain tops to catch rainwater, levelled hills to fill ravines and terraces, hand-carried soils long distances, built multi-purpose reservoirs, reclaimed tidal or saline and waterlogged land, etc. --- practices far too costly under

conventional project evaluation criteria or banking practices. But these have often revolutionized the lives of the people involved.

Crop Technology and Extension:

Productivity and yields, over the past 25 years, have registered steady increases. Compared with other developing countries, yields per hectare are high. This has been accomplished through genetic improvement, intensive land use and excellent field management. Triple cropping has been adopted over large areas, producing yields from 16 to 18 tons of food grains per hectare and in some cases up to 22 tons. Experimental quadruple cropping has been reported.

Part of this achievement also seems due to the very close link between research and extension. Research is problem oriented. At each level of the commune, peasants are involved in experiments and investigation. Production decisions are taken only after trails are full disoussion of new practices are conducted. This reliance on local insights psychologically encourages coordination of research and extension --- and pays off in productivity.

Research:

Current research is decentralized and problem-oriented. The linkages are adequate and bring results of research promptly to bear on production. There is no divorce of research from actual field problems, practical production and the masses. Trained manpower is fully utilized.

China's diseases and pest forecasting system appears excellent. There is stress on prevention of outbreaks. Continued reliance on chemical means to curb diseases and pests ought to be minimized over the long run. Breeding for pest and disease resistance should probably be given high priority now.

Mechanization:

Many industrial plants producing farm inputs or processing agricultural products have been built up as part of the communes. This funnels modern tools into agriculture. It also reflects one of Chairman Mao's sayings: "The fundamental way out for agriculture lies in mechanization."

The ultimate goal is to raise peasant living standards to equal those of city workers. The policy also seeks to build up an industrially-skilled labour force and construct a rurally located industry.

The Chinese are sensitive to the drudgery that farm labour implies. They point out that mechanization also seeks to eliminate the "three bendings involved in pulling, and transplanting seedlings and harvesting. China is, therefore, pressing ahead with mechanization. By 1980, farm operations will be substantially mechanized. This will, in turn, release manpower for other activities.

Grain losses in post-harvest operations may be minimized if the areas are served by mobile threshers. Rice processing technology, particularly at team and brigade levels is still low but improving. The technology to resolve these problems, however, is becoming available.

Animal Husbandry:

The pressing problems of raising grain and other food crops has led to lower priority given to animal husbandry.

Communal ownership of the land and "big" animals has resulted in effective control of contagious diseases, viz. rinderpest, food-and-mouth diseases, etc. "Self-reliance" approaches have secured modest increases in the number of animals and animal products.

There is an on-going campaign to raise one pig for every Mo (1/15 of a hectare) of land. The objective is to increase supplies of animal protein and organic manure. In China not much grain is fed to pigs. As our guides repeatedly told us: Pigs can survive on four greens: "Grow greens; collect greens; store greens; feed greens."

Animal disease treatment is cheap, effective and available everywhere.

Demand for milk, specially in cities and industrial centres, is increasing.

Draught cattle, buffaloes and mules play an important role in agriculture, specially in upland areas. Genetic improvement, management and feeding of these animals have considerable potential. Inclusion of livestock in the eight point charter would be worthwhile.

Agricultural Education:

All agricultural schools and colleges have been re-oriented to serve the needs of the peasants. Experienced "veteran peasants" are brought in as regular staff members to ensure that theory and practice are meaningfully related. Educational investment is made only in those educated youth who have worked for at least two years in a commune, and who have the respect and support of the poorer peasants and who desire to return to serve his commune. Students and teachers engage jointly in research, extension and food production, spending three to four months per year with the peasants at commune level.

Mass Education:

The most striking --- and famous --- example of using communes as a teaching tool for masses is offered by the Tachai commune. "Learn from Tachai," Chairman Mao has urged since then. Over six million people visited Tachai. In fact, Cabinet ministers and other high-level government officials, we were told, were having a seminar on the Tachai experience at the time of our visit.

The techniques that were developed at Tachai came from people at the farm level. Since then, the principles of this development experience have been worked out, formulated and preached in China.

It is a unique method of teaching a nation.

Incentives:

A broad range of incentives --- organizational, financial and ideological --- have been brought into play to ensure rising farm output. The major incentive in all areas is politial consciousness.

The tax on agriculture is low and fixed. Even more significant is the way China has reversed the traditional role of agriculture as a supporter for the industrial sector. Twenty-three per cent more of funds is pumped into agriculture by the State than is extracted through the fiscal system. Industry, including agri-industry, is expected to underwrite the deficits and generally to support agriculture.

Thus, the standard of living is rising more quickly in the rural areas than in the industrial/urban sector.

Purchase prices are guaranteed. Furthermore, the State pays 30% more for grain (and cotton, etc.) delivered in excess of the planned delivery target. Targets are adjusted upwards only at five-year intervals.

Price stability encourages savings.

Above all, economic transactions involving basic needs --- food, clothing, housing, health, eduction, etc.--- have been pulled out from the market place. What emerges is the economics of use and not of profit. The State's ability to control and direct market and economic forces for fundamental needs of the people provides an effective mechanism for meeting basic needs and spurring production.

The production team roughly corresponds to 20 to 30 families. It is small enough for the individual to see and feel the impact of its successes and failures on their own welfare. This gives the team a collective income incentive.

The effort of individual is also promoted by the fact that the team member's income level depends also on the type, quality and quantity of his work.

Equally important are the non-material incentives. These range from recognition for peasants who achieve high productivity to sessions to sharpen politial consciousness. "Grasp the line and everything will fall into place," the farmers are constantly reminded.

There is, too, "socialist emulation." Performance records between individuals, teams and communes are compared. Recognition for the outstanding is quickly conferred.

There is a palapable pride in local and national achievements. Farmers are proud of the accomplishments which they insist were carved out with their own hands, methods and indigenous materials.

Above all, there is the example set by the leadership. The nation's leaders practice what they preach. There is no ostentation. Leaders are reputed to be men of integrity. The cadres participate in the productive labour. All these foster the spread of egalitarian attitudes and give substan to the slogan: "Serve the people."

The standards of homes in rural areas may, in the eyes of outside observers, seem inadequate in cooking area, heating etc. But these facilities must be seen in context of the extreme poverty that prevailed prior to 1949. Seen in this light, these are substantial improvements. The standard of living is markedly rising. This is still a poor country, your hosts will frankly say But it is also a country that is progressing.

Contrary to what earlier reports have claimed, China is not "sharing poverty." The members of our Mission believe the Chinese people are sharing in real progress.

Women and Children

China is outstanding in its all-out effort to implement a programme of equality of men and women in all spheres of activities on the farms. Economic independence gives the Chinese women of today a voice in family affairs that would have been unthinkable a few decades back.

Nursery schools, primary education are available to all. Health services, emphasize preventive medicine. They adequately cover the countryside. Mothers are allowed time off from work schedules to feed their infants. Recreation facilities —— parks, lakes, places of amusement, etc. —— are growing in number. Women and children seemed to balance, on a delicate scale, in order to free the women for manual labour and industrial work.

The New Man, The New Order

China is clearly in a campaign to create a "new man" who is brought up to work for the welfare of the collective.

The value system that is proclaimed is egalitarian and anti-elitist. The system, therefore, goes to considerable effort to prevent the re-emergence of elitist groups.

This led the team to wonder if China does not already embody, in some form, the kind of new economic order which the United Nations —— in the light of a quarter of century of maldevelopment —— now calls for.

Evidence that this is not merely a New Economic Order but a good one was amply provided as much by what the Team did not see as by what the members did see.

We saw no signs of the economic crisis that is endemic in nearly every other part of the world.

We saw no inflation, no shortages (except of the inessentials), no high prices.

We saw no beggary, poverty, misery, starvation, malnutrition.

Basic to the New Economic Order is a New Political Order which somehow blends centralized Power and the enlightened standards of individual and social ethics, the content, pace and tone of which are set by the people's own leaders. The overwhelmingly impressive result is of development practice that has simultaneously —— and more authentically than anywhere else —— both qualitative and quantitative dimensions.

The members of the Mission discussed, in a preliminary manner, the complex issue of replicability.

There are no pat answers.

We have tried to determine which aspects of the Chinese model are transferable, as viewed from four broad perspectives, namely:

1. Those that can be replicated only as part of a social-politial system similar to that of China;

2. Those that could be transferred irrespective of the social-politial system;

3. Those that may be replicated with adjustments to specific local conditions in the recipient countries; and

4. Those that can be transferred irrespective of specific local conditions.

At this early stage, we are now in process of analysing and categorizing a list of items, which prima facie, appear to be replicable.

The time constraints do not allow us to list down our detailed conclusions. We shall address ourselves to this important question in the full report.

DUFF Working Paper
9 August 1979
P.R. Thomforde

Summary Review of FAO Activities Carried out in Cooperation with the People's Republic of China, 1979/80

I. 1979

1. Study Tours/Workshops/Training Courses (UNDP-funded)

2. Other Approved Activities - by Sources of Funding :
   a. United Nations Development Fund (UNDP)
   b. Technical Cooperation Programme (TCP)
   c. Prevention of Food Losses Programme (PFL)
   d. FAO Regular Programme (RP)

3. Proposed Activities
   a. UNDP-funded Activities
   b. TCP-funded Activities
   c. Trust Fund (TF) Activities
   d. FAO Regular Programme Activities
   e. China's Participation in FAO Technical Meetings, Seminars, etc.
   f. China's Preparation of Technical and Other Papers
   g. China's Requests for Equipment

4. Completed Activities

II. 1980

1. List of Proposed China Study Tours for Rural Training (including Study Tours, Workshops and Training Courses) (UNDP-funded)

I. 1979

1. Study Tours, Workshops and Training Courses (UNDP-funded)

No. Subject	Dates	FAO Div. / Officer Responsible	UNDP Code	Budget Code / Cost (US$)	FAO Team Leader / Other FAO Participants	Countries Invited (those underlined participating)
a. Study Tours						
1) Multiple Cropping and Related Crop Production Technology	26.6 - 22.7	AGP / Al-Jibouri	RAS/79/006	1215 / 87 500 *	Brauer / Ti Cheow Choo (RAFE)	BGD(2), BUR, DRK (1 + interpreter), FIJ, IND(2), INS, MAL, NEP(2), PAK, PNG(2), PHI(2), SAM(2), THA(2), SRL (Total: 19)
2) Sericulture Development in China	7.5 - 3.6	AGS / Karam	RAS/79/006	1216 / 77 200 *	Juneja / Karam	AFG, BGD(2), BHU, BUR(2), COL(2), FIJ, IND(2), INS, IRA, MAL(2), NEP(2), PAK(2) PNG(2), PHI, SAM, SRL, THA(2) (Total: 20)
3) Mass Mobilization of Rural Communities for Reforestation	3.7 - 31.7	FODO / Khouzami	RAS/79/006	1217 / 75 500 *	Prats-Llaurado / Catterson	BGD(2), BHU, BUR(2), FIJ, IND(4), INS(2), DKR, MAL, NEP(2), PAK(2), PNG(2), PHI(2) SRL, THA(2) (Total: 20)
4) Forestry Support for Agriculture (French-speaking)	3.5 - 31.5	FODO / Khouzami	RAF/79/012 / RAB/79/006	1229 / 102 000 ** / 1235 / 17 212 **	Huguet / Keita / " / "	ALG, BEN(2), BDI, CMR, CAF, CHD, GUI, IVC, MAG, MLI(2), MAU(2), MOR, NER, RWA, SEN(2), TOG(2), TUN(2), UPV(2) (Total: 20)
b. Workshops						
1) Post-harvest Grain Technology (Storage Structure Design)	19.10-16.11	AGS / Rannfelt/ Lundstrom	RAS/79/006	1218 / 78 300 *	Rannfelt / Sode	AFG, BGD(2), BHU, BUR(2), IND(2), INS(2) IRA, MAL, NEP, PAK(2), PHI(2), SRL, THA(2)
c. Training Courses						
1) Freshwater Fisheries Development (2 courses)	6.3 - 5.6 / 15.6 - 15.9	FIO / Subba Rao	RAS/79/006	1219 / 212 000 *		- BUR(4), IND(8), INS, MAL, NEP(2), PAK, PHI(2), SRL(2), THA(2) (Total: 20) - BUR(2), IND(3), INS(4), MAL(3), PAK(2) PHI(3), THA(3) (Total: 20)

* UNPP/NY approval received by cable of 23.1.79, Misc. 107
** UNDP/NY cabled agreements of 7.2.79 and 12.2.79.

N.B. DDFF Budget Code for 1979 for General supplies, equipment and services is 1230.

2. Other Approved Activities

a. UNDP

Project Symbol and Title Objectives	Op. Unit/CPO (Tech.Divs.) PM/CTA	Date Approval Date Start Operations Date NTE	Total Donor Contr. (US$) (Govt. Contr.) Budget Code	Comments
CPR/79/001 - Grassland Development and Improvement (Wongnute Ranch), NW Liaoning To assist the Government and the Wongnute Banner in establishing and managing a pilot demonstration centre for the intensification of pasture, fodder and livestock production.	AGO - Zafar (AGP - Kernick) (AGA - Auriol)	5. 2.79 (PA) 1.80 12.81	1 000 000 (5 499 523) (in kind) 3.9100.1258.11	PA mission 26.5 - 16.6.79. Kernick report dated 20.6.79 and Auriol report 22.6.79. Draft PD prepared 12.7.79, and sent to Kong Candong 1.8.79 for clearance.
RAS/79/077 - Regional Lead Centre for Integrated Fish Farming, Wuxi To assist in the establishment of a lead centre for integrated fish/livestock/crop farming in Wuxi; to conduct training courses for technicians from developing countries (replacing the Guangzhou Centre); to carry out research and disseminate information.	FIO - Pillay	7.80 6.82	379 210 *	PD drafted by Pillay after consultation in China; submitted to UNDP 8.6.79. UNDP agreed to project in principle (see their letter of 28.6.79). Their letter 11.7.79 requested revised PD from FAO.
CPR/79/012 - Study Tours and Training in Fisheries ("Reserve List") To provide 2 Study Tours, on Marine Aquaculture (UK) and Fisheries Education plus Training (Japan); 2 Training Courses, on Marine Resources Evaluation (China) and Squid and Puffer Fishing (Japan).	FIO - Pillay/Rao	10.79 10.81	100 000	Prepared by FIO following discussion by Pillay in China in May 1979. Letter to Mr. Chin of 6.8.79 asking Chinese priorities for scaling down proj. within UNDP alloc.

* Balance of US$ 760 000 from country IPFs or inter-country IPFs of other regions involved.

a. UNDP (cont.)

Project Symbol and Title Objectives	Op. Unit/CPO (Tech. Divs.) PH/CTA	Date Approval Date Start Operations Date NTE	Total Donor Contr. (US$) (Govt. Contr.) Budget Code	Comments
CPR/79/013 - Study Tours in Forestry ("Reserve List") To organize four study tours in the following subject-matters: forestry education; methodology of forestry research; conservation of nature and wildlife; wood preservation.	FODO -	1.80 9.80	95 000	Draft PD prepared by FODO. Prats-Maurado discussed in Beijing in July 1979 and some modifications proposed. See also Huguet's memo of 8.6.79 (PR 12/2 CHA).
CPR/79/014 - Expert Services and Fellowships for Land Reclamation ("Reserve List") To provide training courses (fellowships) and study tours abroad for Chinese scientific workers in certain aspects of rubber production, rice production and dairy husbandry, and to provide for a series of lectures in China by a rubber specialist.	AGO - (AGP - Gunawardene Haq) (AGA - Kroeske)	8.79 9.80	70 000	Project discussed with Min. of Land Recl. in Beijing by Kernick/Auriol in May 79. PD drafted at HQs and submitted to UNDP 18.6.79. See Kernick/Thomforde memo. 27.6.79 on discussions in China.
CPR/79/023 - Demonstration of Mechanized Cotton Seed Cleaning ("Reserve List") To establish a demonstration programme of mechanized cotton-seed cleaning under the overall supervision of the Seed Bureau of the Ministry of Agriculture.	AGO - Zafar (AGP - Mignell)	10.79 12.80	500 000 (1 000 000) (in kind)	Draft PD prepared by AGO, and comments received from AGP 3.8.79 by DDFF. Revised draft sent to Kong Candong for clearance 8.8.79.

b. Technical Cooperation Programme (TCP)

Project Symbol and Title Objectives	Op. Unit/CPO (Tech.Divs.) PM/CTA	Date Approval Date Start Operations Date NTE	Total Donor Contr. (US$) (Govt. Contr.) Budget Code	Comments
TCP/CHA/8802 - Introduction of Modern Seed Production Technology (Study Tour) Phase I: To provide a study tour for 8 Chinese technicians to Italy and France on technical and organizational aspects of large-scale production of pure rice, wheat and maize seed. Phase II: To provide selected processing equipment to China, on basis of tour's recommendations.	AGO - Zafar (AGP - Delhove) (AGS - Corbett)	4. 9.78 15. 9.78 15. 9.79	250 000 8.622.02	
TCP/CHA/8803 - Sample Equipment of Seed Processing for Maize, Wheat and Rice To assist the Government in testing and identifying the equipment required to develop the processing of pure and improved maize, wheat and rice seed on an experimental basis.	AGO - Zafar (AGP - Delhove) (AGS - Corbett)	20.12.78 1. 1.79 30.10.79	250 000 8.622.03	Project complementary to TCP/CHA/8802.
TCP/CHA/8904 - Strengthening Remote Sensing Applications for Soil Survey and Forestry To provide two training courses on the application of remote sensing to (1) land resources/soil surveys, (2) forest resources surveys and assistance with follow-up action; to provide essential remote sensing equipment for the courses; to provide additional training for 4 officers on fellowships at FAO and in other European centres.	AGL - Howard	5. 3.79 1. 7.79 30. 6.80	250 000 2.9578.8. 622.04	Project identified by Howard Dec.78. He visited China again 26.3 to 13.4.79; course on remote sensing in land resources/soil surveys to be held Oct./Nov.79. Possibility of large-scale project in 1982 and bridging programme to be discussed Beijing 10/79 (see Howard report June 1979, para. 5.12 on UN 2/24).

c. Prevention of Food Losses (PFL)

Project Symbol and Title --- Objectives	Op. Unit/CPO (Tech.Divs.) PM/CTA	Date Approval Date Start Operations Date NTE	Total Donor Contr. (US$) (Govt. Contr.) Budget Code	Comments
PFL/CHA/001 - Introduction of Drying Equipment for Cereals --- Phase I: To provide a three-week study tour for 4 Chinese technicians (with interpreter and an FAO staff member) to Italy, Denmark and UK to identify drying equipment for cereals. Phase II: To provide for purchase of equipment for testing and demonstration on a pilot scale in S.China for wheat, maize, soybean and other crops.	AGO - Zafar (AGS - Caro) (AGP - Delhove)	19. 2.79 1. 3.79 31. 1.80	400 000 9102.2029.00	Study tour: Italy (1-5 May), Denmark (6-11 May) and back to Rome (20-23 May). Tour completed; equipment recommended and Contracts Sub-Committee has approved for purchase June 79. Members: Mrs. Hau Wen-hui; Mr. Yang Ru-kai; Mr. Lu Jing-ju; Mr. Ma Gui-zhong; and interpreter Mr. Huang Wei-kuan.

d. FAO Regular Programme

Project Symbol and Title --- Objectives	Op. Unit/CPO (Tech.Divs.) PM/CTA	Date Approval Date Start Operations Date NTE	Total Donor Contr. (US$) (Govt. Contr.) Budget Code	Comments
TA 9/1 China - Lecture Tour on Animal Husbandry and Veterinary Surgery --- To send 3 consultants and one FAO expert in swine and poultry husbandry and veterinary science for a 19-day lecture tour to China in August/Sept. 1979	(AGA - Lymne-rup)	6.12.78 23. 8.79 21. 9.79	35 000 2.9200.213.5.00	Itinerary planned: 11 days Beijing, 3 days Shanghai, 5 days Hanksu. Consultants: Twiehaus (USA) swine diseases; Nordskog (USA) poultry breeding; Lancaster (Can.) poultry diseases; Kroeske (FAO-AGA) swine prod. See Auriol's note of 26.6.79 on PR 12/2 CHA.
TA 9/1 China - Lecture Tour on Olive Cultivation --- To establish a programme and define a strategy for olive growing research and olive production development (20-day lecture tour of 3 specialists and one FAO expert)	(AGP - Menini)	6.12.78 9.79 10.79	35 000 2.9200.212.200	Consultants: Zucconi (It.) olive-growing; Nigond (Fr.) olive bioclimatology; Pastor (Sp.) orchard management; Menini (FAO-AGP) group leader. Lecture Material: "Modern Olive Growing", now in Chinese, and "Olive Production", in process of translation.

3. Proposed Activities

a. UNDP-funded Activities

Project Symbol and Title	Estimated Duration	Funds (US$)	Comments
RAS/79/ - Regional Sericulture Training Centre Objective: To establish a regional training centre for training groups of technicians from developing countries. The Centre will be located at the National Sericulture Research Inst., Zhenjiang.	2 courses of 3 months each in 1980 (Feb./April and June/ Aug.)	250 000 (plus additional sum for equipment)	UNDP has earmarked this sum for 1980 (cable Misc 1775 Globerman/Beringer of 5.12.78). See memo. Aribisala/Yriart of 15.11.79, minutes of meeting with Kong Candong on 21.6.79 (PR 12/2 CHA), and letter Yriart/Kong of 6 Aug. 79 attaching list of equipment and budget est. (AGS - Asselbergs)
PAK/74/067 - Study Tour to China from Pakistan on Development of Rural Poultry (for 13 participants)	3 weeks (March/ April 1980)	43 940	See letter Gallardo/Sneyd of 24.4.78, Phillips/Juneja of 17.6.79, and memo. Myers/Thomfords of 3.7.79 on PR 12/2 CHA confirming funds available in proj. budget to meet cost. (AGOF - Myers)
RAB/71/293 - Study Tour to China on Crop Productivity and Farming Systems - from UNDP Project in Near East	1 month	102 300	See letter El Ghoneny/Yriart of 24.5.79, reply of 4.7.79 and Shawki/El Ghoneny letter of 6.6.79 on PR 12/2 CHA. Requires assurance of funding. Probably not for implementation before 1981. (AGON - Shawki)
PHI/77/009 - Study Tour to China from Philippines on Use of Azolla in Rice Production and the Effect of the Combination of Organic Manure and Chemical Fertilizer on Crop Yield (for 10 counterparts, 2 FAO, and possibly 3 Japanese)	2 weeks (Oct. 1979)	20,000	See letter Ho/Braun of 19.7.79 on PR 12/2 CHA. Only $5,800 in budget to cover costs. See also cable Braun/Dall of 3.8.79. (AGL - Braun)

b. TCP-funded Activities

Project Symbol and Title	Estimated Duration	Funds (US$)	Comments
TCP/SRL/8907 (T) - Training in Acupuncture for Livestock (Anaesthesia) for Two Sri Lanka Lecturers	6 weeks (1979)	2 500	See Laurent/Beringer letter 23.6.79 with official nominations of two lecturers to study veterinary acupuncture anaesthesia techniques in China: Drs. B.M.O.A. Perera and T.A. Bongso. (AGA - Koube)
- Introduction of Industrialized Fish Rearing Equipment, and Study Tour to Obtain Practical Training	(1980-81)		At meeting with Mr. Li Yung-kai on 6.12.78, DG said he was prepared to approve this project proposal for TCP funding in 1980/81. (FIO - Kojima)
- Training in USA or Australia in Forest Genetics, Introduction of Species, etc. (5 people for up to 3 years each)	(1980-82)		Min. of Forestry expressed interest in this proj. to Mr. Huguet (see his memo. of 8.6.79, para. 2.2, on PR 12/2 CHA). To be discussed with Mr. Willan and Miss Palmberg. (FODO - Prats-Llaurado)
TCP/8/CHA/01/T - Chinese Study Tour on Olive Production and Processing (follow-up)	1979		Study tour undertaken 2.10-6.11.78. Follow-up: (1) FAO to secure 68 olive varieties from Italy, France and Spain and send them to Beijing by end Feb. 79. Completed. (2) 20 pieces of pincer-type olive harvesting tools and one set pneumatic pruning machines requested. These have not yet all been received or paid for. (AGP - Menini)

c. Trust Fund (TF) Activities

Project Symbol and Title	Estimated Duration	Funds (US$)	Comments
G 0460 - Study Tours on Rubber Production Methods and Scientific Research and Identification of Equipment Objective: To provide for 2 study tours: (1) to selected countries to identify clones for introduction & agronomic techniques for increased produc. (5 technicians + interp.) (2) to France and UK to study technologies for rubber and rubber goods and identify equipment to be procured under project (4 technicians + interp.)	6 weeks each for 2 study tours (1979)	200,000	See Chin's letter to FAO of 9.5.79 and Yriart/Bommer memo. of 21.5.79 and Feistritzer/Bozzini memo. of 5.6.79 and his "Project Idea for Chinese Study Tour" (PR 12/2 CHA). Possible donor being sought. (AGP - Bozzini)
G 0459 - Equipment and Study Tour for Crop Variety Resources Laboratory		250,000	See Yriart/Bommer memo. of 21.5.79, Feistritzer/Bozzini of 5.6.79 and Piquer/Teunissen of 7.6.79 (PR 12/2 CHA). Clarification on purpose being sought from Mr. Chin in letter 14.6.79. Possible donor being sought. (AGP - Piquer)

d. FAO Regular Programme Activities

Project Symbol and Title	Estimated Duration	Funds (US$)	Comments
- Promotion of Deer Farming - Production of Musk		1 500	China invited to provide consultant for preparation of short paper on musk deer farming for manual on deer farming promotion (letter Yriart/Kong Candong of 30.3.79, and Huguet's memo of 8.6.79, p. 5, para. 3.2, on PR 12/2 CHA). (FOR - Huguet)

e. China's Participation in FAO Technical Meetings, Seminars, etc.

Title	Dates	Comments
- FAO Fast-Growing Species Consultation, Portugal	16 - 20 Oct. 1979	China to participate if approved by Planning Ministry (see Huguet memo of 8.6.79, para. 2.1, on PR 12/2 CHA). (FOR - Huguet)
- Seminar on Forestry for Rural Community Development, Chiang Mai, Thailand	3 - 15 Dec. 1979	See letter Yriart/Kong Candong of 16.3.79. China to participate and prepare statement. (See Huguet memo. of 8.6.79, para. 3.1, on PR 12/2 CHA.) (FOR - Huguet)
- FAO/UNDP Technical Consultation among Developing Countries of Asia and the Pacific on Food Control Needs and Means, Manila	4 - 10 Sept. 1979	China invited to attend, 20.7.79, and food sanitary inspection delegation expressed interest in participating (see ESN minutes of 6.7.79, on PR 12/2 CHA). (ESN - Malik)

f. China's Preparation of Technical and Other Papers

Title /Subject	Comments
- Request to China to prepare articles about Chinese livestock and poultry for FAO Quarterly "World Animal Review"	See letter Yriart/Kong Candong of 18.7.79 on AN 1/1. (AGA - Faulkner)
- Request to China to complete FAO Questionnaire on Public Expenditure on Agriculture, 1973 to 1977	See DG's letter, ref. G/ESS-12, of 23.2.79. (ESS -

g. China's Requests for Equipment

Subject	Comments
- Industrial Production of Seedlings	Request for donation of greenhouse for cold climates. Miss Palmberg being consulted. (See Huguet's memo. of 8.6.79, para. 2.3 (i), on PR 12/2 CHA.) (FOR - Huguet)
- Protection of Rare and Endangered Animals (small and big panda, monkey with holden hair, and goat with bull horns)	Request for equipment donation for counting animals. Mr. Child being consulted (see Huguet's memo of 8.6.79, para. 2.3 (ii), on PR 12/2 CHA). (FOR - Huguet/Child)

4. Completed Activities

Subject	Comments
- Preparation of contribution by China to FAO's "National Methods of Collecting Agricultural Statistics" supplements, 1979	Paper received 6.7.79 entitled "China's Current Methods of Collecting Agricultural Statistics".

II. 1980

1. List of Proposed China Study Tours for Rural Training (incl. Study Tours, Workshops, Training Courses) (UNDP-funded)

Title	Language	Number of Participants FAO	Number of Participants Country	Region	Time	Funding	UNDP Contribution (in US $) Dollars	Yuan (eqv)	Total
1. Workshop and Training Course on Grain Processing Technology	E	1	20	Africa	mid-May		25 060	81 792	106 852
2. Study Tour on Forestry Support to Local Community Development	S	2	20	Latin America	mid-September		70 711	62 196	132 907
3. Study Tour on Integrated Crop, Livestock, Fishery and Agro-Forestry Production Techniques	E	2	20	Asia	September	RAS/79/006	33 589	53 975	87 564
4. Soil and Water Conservation and Management Study Tour	F	2	17	Africa	April/ May		40 641	82 830	123 471
5. Workshop on Post-harvest Grain Technology (Pest and Quality Control)	E	1	12	Asia	mid-May 6 weeks	RAS/79/006	22 146	43 209	65 355
6. Small-scale Biogas Unit Construction and Operation Training Course	E	-	10	Asia	April/ June	RAS/75/004	16 711	28 119	44 830
7. Study Tour on Multiple Cropping Systems	F	2	18	Africa Europe L.Am.	late May		41 874	87 192	129 066*
8. Study Tour on Integrated Wood Processing Industries	F	2	20	Africa	mid-April		47 499	95 910	143 409
9. Post-harvest Grain Technology (Storage Structure Design)	F	2	20	Africa	mid-October**		45 926	95 910	141 836
10. Study Tour/Workshop in China on Aquaculture Development	F	2	18	Africa	April/ May **		44 047	87 192	131 239
11. Study Tour/Workshop in China on Aquaculture Development	S	2	18	Latin America	May/ June **		65 062	56 542	121 604
12. Training Course in Freshwater Fisheries - 3 months	E	-	20	Asia	March-June **	RAS/79/006	31 623	81 438	113 061
							484 889	856 305	1,341 194

* Africa: US$ 115 635; Latin America: US$ 7 100; Europe: US$ 6 331

** Dates subject to confirmation from Beijing

Summary:

Africa:	US$ 762 442
Latin America:	US$ 261 611
Asia:	US$ 310 810
Europe:	US$ 6 331

UNDP/FAO STUDY TOURS TO CHINA

A. Interregional

(1) 1977 (28 April - 24 May) Organic Recycling in Agriculture

Participants - FAO: Hauck (Team Leader), Lusanandana, Sant-Anna

Others From: Afghanistan, Bangladesh, Burma, Cameroun, Egypt (2), Ethiopia, Chana, India (2), Nepal, Nigeria, Pakistan (2), Philippines, Sri Lanka, Tanzania.

Report - "Recycling Organic Wastes in Agriculture", FAO Soils Bulletin No. 40 dated 1977.

(2) (11 August - 13 September) Forestry Support for Agriculture

Participants - FAO: Eren (Team Leader), Nao, Stevens;

Others from: Bangladesh (2), Burma, India (2), Kenya, Nepal, Pakistan, Papua New Guinea, Philippines, Sri Lanka, Somalia, Sudan, Tanzania.

Report - N/A

(3) (8 September - 4 October) Soil and Water Conservation and Management

Participants - FAO: Dudal (Team Leader), Takamiya, Viertmann;

Others from: Afghanistan, Burma, Egypt, India (2), Iraq, Mexico, Nepal (2), Nigeria, Pakistan (2), Peru, Philippines, Sri Lanka, Tanzania, Venezuela.

Report - N/A

(4) 1978 (2 May - 1 June) Freshwater Fisheries and Aquaculture

(21 May - 11 June) Azolla and Biogas

(7 June - 5 July) Irrigation, Drainage and Water Use

(17 Aug. - 15 Sept) Integrated Wood Processing Industries

(September) Agricultural and Rural Training in Rural Areas

(28 Sept - 27 Oct) Processing Technology to Serve Agriculture

(5) Multiple Cropping Systems
Appropriate Crop Production Technology
Rural Technology and Human Resources Development
Communes and Agricultural Productivity
Animal Production and Health

B. Country

1978 (May) Soil and Water Conservation/Hill Irrigations - Nepal

Participants - FAO: (1)

Others from: Nepal (6)

1978 Hill Irrigation - Nepal

Participants - Nepal: (2)

1978 (May) Rural Development - Philippines

Participants - FAO: (1)

Others from: Philippines (3)

1979 Multiple Use Mountain Forestry Development - Nepal

Participants - FAO: (1)

Others from: Nepal (6)

1979 Burma - Crop Production and Protection (BUR/72/003)

Pakistan - Rural Poultry Development (PAK/74/067)

Philippines - IRRI Germ Plasm Seed Collecting Tour

FAO FELLOWSHIPS IN CHINA

1975 Fisheries (Aquaculture) - 12 from Sri Lanka; period 6 months

- "Report to FAO on the Tour of Jayamaha (and other participants) in the People's Republic of China on Fisheries Management and Culture - 1 April - 24 Sept. 1975".

1978 Fisheries (Aquaculture) - 50 fellows in 2 classes of each from Bangladesh for 4 months each, financed by FAO/TCP (6/BGD/04/T) to be trained in Guangdong (Canton) area.

May - August

FAO TECHNICAL MISSIONS TO CHINA

1974 (26 April - 26 May) Buffaloes of China

- Dr. W. Ross Cockrill
- "The Buffaloes of China", 1976, FAO, 98 pp. and "Report on a Visit to China"

1975 (9 Sept. - 5 Oct.) Agricultural Productivity and Study of People's Communes

Participants - Umali (Leader), Al-Jibouri, Clark, Crowley, de Fonseka, Lehti, Mengin, Pillai, Thet-Zin

(a) "First FAO Professional Study Missions to China: Some Observations", 9 pp., 13 October 1975.

(b) "Learning from China" - A report on Agriculture and the Chinese People's Communes 1977, 112 pp., Bangkok, Nov. 1977 1/

1976 (21 April - 12 May) Fisheries (Aquaculture)

Participants - Tapiador (Team Leader), Delmonde, Henderson, Tgutsui

- "Freshwater Fisheries and Aquaculture in China" FAO Fisheries Technical Paper No. 168; Report of the FAO Fisheries (Aquaculture) Mission to China, 21 April - 12 May 1976, dated June 1977.

(9 Sept. - 10 Oct.) Forestry

Participants - King (Team Leader), Chandrasekhara, Polycarpou, Prakoso, Swiderski, Turbang

1977 (21 Sept. - 13 Oct) - Post-Harvest Food Loss Reduction of Staple Foods (Cereals/Grains)

Participants - Aribisala (Team Leader), Asselbergs, Corbett, Huysmans, Thet Zin, Shuyler, Reddy

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1/ Report in Spanish and French in preparation

OFFICIAL FAO VISITS TO CHINA

1973 (20 - 28 February)

Participants - Boerma (Director-General), Umali, Aziz, Westeby

- "Report on the Director-General's Visit to China". (PPAB/73/22 (PP)), dated 27 March 1973

(12 - 22 May)

Participants - Handefield (Director, Publications Division)

- GIP: Misc. Report 73/20, cir. on 24 May 1973; also PPAB summary Record, 20 May 1973 (PPAB/73/42 (SR), 2 July 1973, pp. 4-5)

1974 (10 - 15 September)

Participants - West (Assistant Director-General, Programme and Budget), with Gonzalo Bula Hoyos, Independent Chairman, FAO Council.

- No formal report.

1975 (1 - 3 May)

Participants - Jackson (Deputy Director-General), West

- No formal report.

(28 May - 3 June)

Participants - Umali (Assistant Director-General, Bangkok), Mengin

Report - Letter to Director-General of 10 June 1975 (FA 8.11 DP 2/6 PRC)

(14 - 17 July)

Participants - Boerma (Director-General), Umali, de Vajda, Sillari-Medina

Report - "Notes on Duty Trip to Mongolia, China and Pakistan" 7-22 July 1975, by A. de Vajda. "FAO Director-General Boerma's Visit to the Red Flag Canal" 16 July 1975.

1977 (17 - 24 May)

Participants - Edouard Saouma (Director-General), B.R. Sen, V. Shah

Report - "Report of the Director-General on Duty Travel" PPAB Summary Record, Meeting 1146, 31 May 1977 (PPAB/77/17 (SR)), 13 June 1977, pp. 1-4.

FAO PARTICIPATION IN MISSIONS OF OTHER AGENCIES

1974 (22 Nov. - 9 Dec.) Canadian Fisheries Mission

Participants - Payne, Woodward

- "Summary Record of Report of Mr. Payne on his visit to China, Accompanying the Canadian Mission" (PR 12/2 China), dated 20 December 1974.

"Final Report - Visit of the Canadian Fisheries Mission to the People's Republic of China, 22 November - 9 December 1974, dated January 1976, available from Fisheries and Marine Services, Ottawa, Ontario, Canada.

List of FAO Publications on China

Report on China's Agriculture. By H. V. Henle, Regional Information Adviser. Rome. 272 pp.

The Buffaloes of China. By W. Ross Cockrill. Rome. 96 pp.

Learning from China: A Report on Agriculture and the Chinese People's Communes, by an FAO Study Mission, 9 September - 5 October 1975. Bangkok. 112 pp.

Freshwater Fisheries and Aquaculture in China. A Report of the FAO Fisheries (Aquaculture) Mission to China, 21 April - 12 May 1976. FAO Fisheries Technical Paper No. 168. Rome. 84 pp.

China: Recycling of Organic Wastes in Agriculture. Report on an FAO/UNDP Study Tour to the People's Republic of China, 28 April - 24 May 1977. FAO Soils Bulletin No. 40. Rome. 107 pp.

China: Forestry Support for Agriculture. Report on an FAO/UNDP Study Tour to the People's Republic of China, 11 August - 30 September 1977. FAO Forestry Paper No. 12. Rome. 103 pp.

China: Azolla Propagation and Small-scale Biogas Technology. Report on an FAO/UNDP Study Tour to the People's Republic of China, 21 May - 11 June 1978. FAO Soils Bulletin No. 41. Rome. 81 pp.

Aquaculture Development in China. Report on an FAO/UNDP Aquaculture Study Tour to the People's Republic of China, 2 May - 1 June 1978. Rome. 65 pp.

China: Integrated Wood Processing Industries. Report on an FAO/UNDP Study Tour to the People's Republic of China, 20 August - 17 September 1978. FAO Forestry Paper No. 16. Rome. 69 pp.

China: Rural Processing Technology; The Role of Country, Commune and Brigade Enterprises in China's Rural Development. By the FAO/UNDP Study Tour to the People's Republic of China, 28 September - 27 October 1978. FAO Agricultural Services Bulletin No. 36. Rome. 63 pp.

Nepal: Multiple-use Mountain Forest Development (TCP/8/NEP/01/T). Report on a Study Tour to the People's Republic of China, 26 November - 11 December 1979. Rome. 32 pp.

China: La contribution des activités forestières au développement rural. Rapport sur un Voyage d'étude PNUD/FAO, 1er mai - 2 juin 1979. Rome. 49 pp.

Artificial Propagation of Chinese Carps. Filmstrip Commentary. By F. A. Pagan-Font, J. Zimet and F. Botts. Rome. 75 pp.

China: The Agricultural Training System. FAO Economic and Social Development Paper No. 11, dated 1980. 131 pp.

Publications

Hulse

1 copy of the following:

IDRC-115e - *Fisheries and aquaculture in the People's Republic of China*

3 copies of the following:

-- *Sorghum and the Millets* (Academic Press)
IDRC-021e - *Nutritive value of triticale protein*

6 copies of the following:

IDRC-089e - *Agriculture, Food and Nutrition Sciences Division: the first five years*
IDRC-094e - *Trees for people*
IDRC-107e - *Caqueza: living rural development*
IDRC-107s - *Caqueza: experiencias en desarrollo rural*
IDRC-120e - *Fish farming: an account of the aquaculture research program supported by the International Development Research Centre*
IDRC-131e - *Give us the tools: science and technology for the Third World*
IDRC-134e - *Standardization of analytical methodology for feeds: proceedings of a workshop held in Ottawa, Canada, 12 - 14 March 1979*
IDRC-143e - *Food or famine: an account of the crop science program supported by the International Development Research Centre*
IDRC-146e - *Food systems: an account of the postproduction systems program supported by the International Development Research Centre*
IDRC-145e - *Polyphenols in cereals and legumes: proceedings of a symposium held during the 36th annual meeting of the Institute of Food Technologists, St. Louis, Missouri, 10 - 13 June 1979*

HEALTH SCIENCES

Health

Two-thirds of China's health care system relies on traditional methods, including the countries own drugs, herbal cures and treatments (acupuncture, etc.). Preventative medicine is stressed. The system is closely linked to the political beliefs and, basic as much of it is, it works fairly well for most of the population. The chinese are particularly good pharmacists and their herbal remedies have a lot to offer, but they recognize that in labelling and formulation techniques used in modern drug production elsewhere they are probably 20 years or so behind. Some drugs are prescribed more readily in China than they are in Canada e.g. Chloramphenicol, whilst others often are not.

At the base of the system are the clinics manned by so-called "barefoot doctors". The term "barefoot doctor" first appeared in conjunction with the Chiang Chen commune near Shanghai when, in 1965, it began to dispatch medical auxilliaries to the countryside outside to treat the sick. It became a mass movement in 1968 following publicity in People's Daily (14 September 1968). "Barefoot doctors" began to spring up in all rural areas of China. An official description appeared in Peking Review 1973 16 (21) 15-18. The basic document is the "Training Manual for Barefoot Doctors" published in Peking in 1970 and now available outside in translated form. The vogue spread to other professions, e.g. "barefoot teachers", "barefoot vetinarians", etc. An important feature of the service is dissemination of health information among the lower classes. In addition mobile medical teams provide a back up service. The chinese often prefer to play down the rural health care system because it operates on a shoestring, in favour of the more spectacular surgical feats for which China has become famous, such as re-joining severed limbs, operations carried out with acupuncture and without the need for anaesthetic, etc. There are 1.9 hospital beds per 1 000 population and 2.6 professional medical workers per 1 000 head of population.

Population Policy

Historically population has been limited by disease and famine. Later after the revolution socialist theory was opposed to Malthusian doctrine and it was held for a long time that China was capable of feeding any increase in population and that the large birth rate, far from being a weakness, was a national asset ("we have a population of 600 million.....and that is our asset" Mao Zedong "On the correct handling of contradictions among the people Peking 1956 p.27). From 1949 to roughly 1953 then, China officially followed the so-called "populationism" policy, a path roughly following Marx's proposition that numerical size of population is merely an aspect of a maladjusted social system. China, therefore, stressed the productive power

of a large population. After 1962, a gradual swing away from this position became apparent because of the growing disparity between food supply and population growth. Late marriage was stressed but it was not until 1965 that a massive birth control program was introduced. A revised schedule of import duties in 1962 first permitted free importation of contraceptives which marked the beginnings of a national campaign incorporating various devices. According to a New China News Agency Report on 7 December 1965, over 1,000 mobile health teams were touring the countryside publicizing birth control measures including IUD's. Birth control measures are now more actively pursued in China. The current birth rate is estimated to be 24 per 1,000 and the date rate 9 per 1,000 with a life expectancy of about 73 years. As one would expect there are larger families in rural areas.

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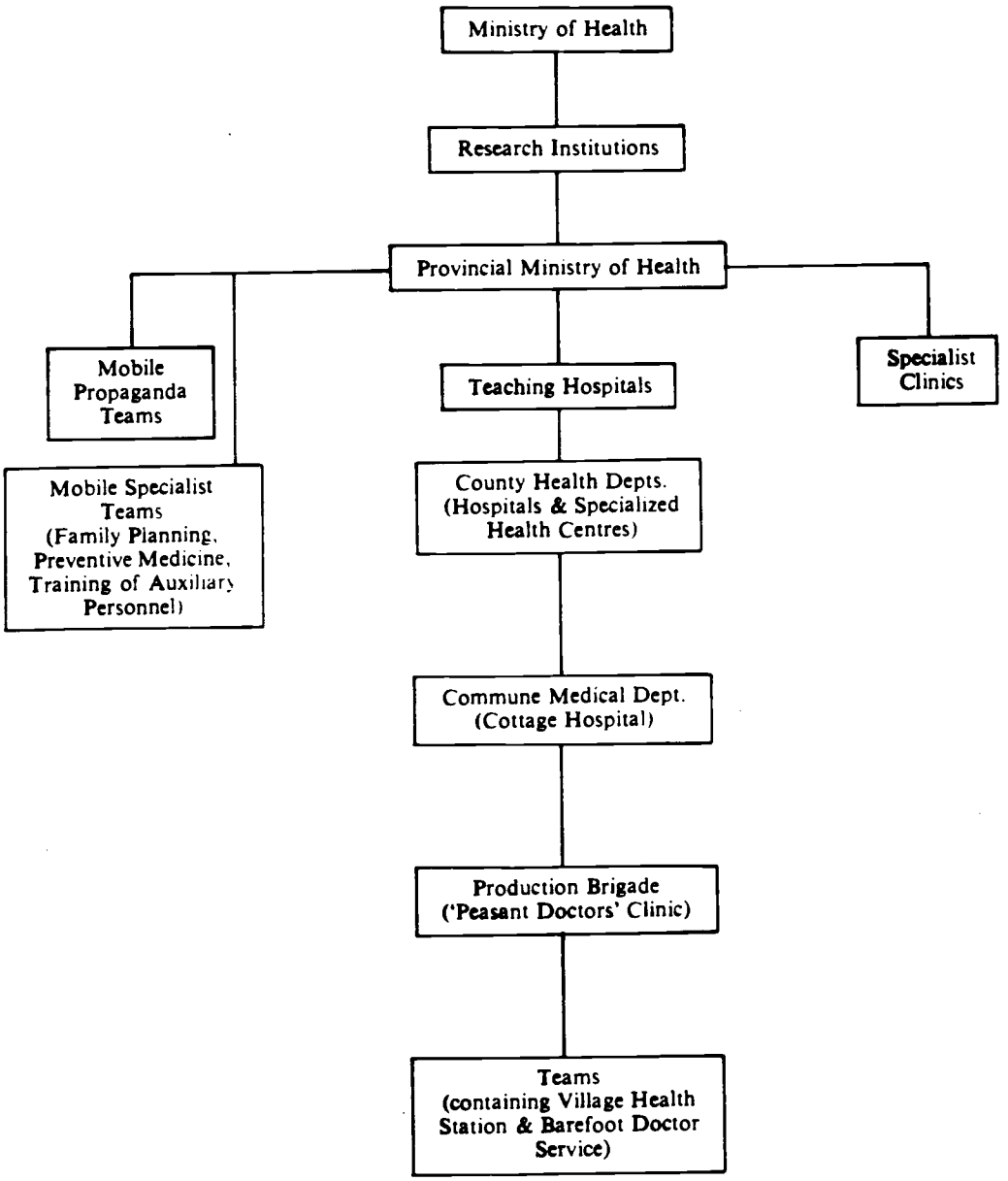
Testing Laboratory
Director Lin Ziyun



THE RURAL HEALTH SYSTEM IN CHINA

Medical and Health Service

by Our Correspondent Lin Yang

What about medical and health service in China after the ten years of turmoil which began in 1966? Is there a basic change in the policy of the state in this field? A "Beijing Review" correspondent interviewed Minister of Public Health Qian Xinzhong* and visited some places in urban and suburban Shanghai to find out the answer. Her report follows.

Public Health Minister on Modernization

Question: Minister Qian, can you say something about the goal of medical and health service in the modernization programme, the new Long March the whole nation has set out on?

Answer: Well, to put it in a nutshell, our goal is to elevate medical science and technology in our country to the world's advanced levels, to provide our hospitals and clinics in both urban and rural areas with modern technology and equipment and run them in a scientific way; also we must build up a huge professional contingent with a good grasp of modern medical science and technology. The ultimate aim is, of course, to raise the general health level of the whole nation to a considerable extent.

Public Health Minister Qian.

Q: What is the guideline for the modernization of medicine and public health?

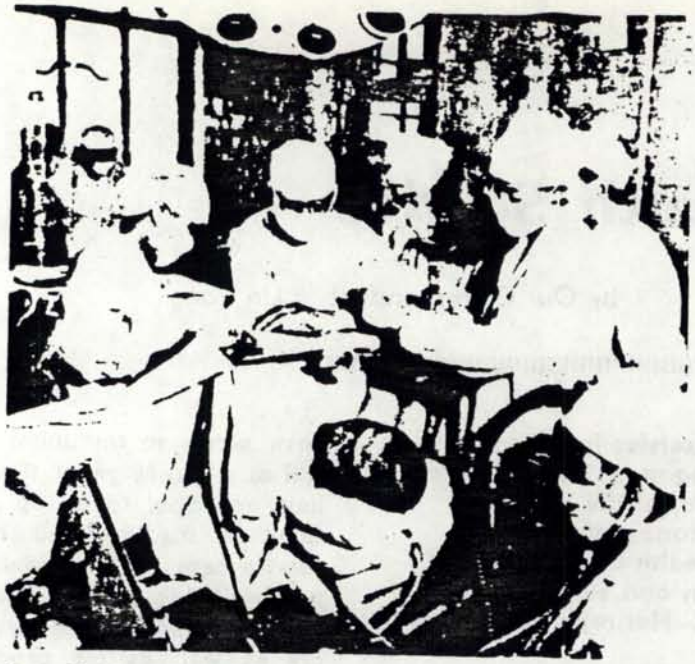
A: Our principle is to keep to the socialist orientation, import advanced technology while maintaining self-reliance and make progress step by step on the basis of what we have achieved thus far.

Before the founding of the People's Republic in 1949, life for the people in our country was hard and sanitary conditions were extremely poor; the working people both in town and the countryside did not have access to minimum medical care. In 30 years' time, we have managed to set up a nationwide medical and health service network and build up a number of bases for training medical personnel and researchers as well as for producing medicines and medical appliances. Regular mass movements have been launched to improve sanitary conditions both in town and the countryside; this has lowered the incidence of many diseases. A new medical science incorporating both Western medicine and traditional Chinese medicine, which are two different medical schools each with its own merits, has developed steadily and produced some advanced achievements.

By modern standards, medical science in our country is, of course, still not highly developed, its equipment is outdated and its development in various regions, in town and the countryside, is very uneven. We'll have to work hard for a long time to come before this situation can be changed. To speed up this change we need to learn the more advanced science in foreign countries and their experience in management and, whenever it is possible, we should import some advanced technology and equipment. Self-conceit and closed-door policy have nothing in common with the policy of self-reliance.

As to our guideline, I think the four main principles laid

* Qian Xinzhong, 69, is an expert on public health. He was a surgeon in the Eighth Route Army and a leader of health work in the 1930s and 1940s. As Vice-Minister of Public Health, he put forward in 1965 a programme for the training of paramedics in the countryside in the hope of transforming within ten years the look of the Chinese countryside in public health. He is contributing his share to making marked improvements in public health in the rural areas in this decade.



A needle in the patient's right forearm is all that is needed for acupuncture anaesthesia during a pneumonectomy.

down by the Party Central Committee and the late Chairman Mao in the early years of the People's Republic fit conditions in our country quite well and we should continue to follow these principles in our modernization programme. These principles are: **Be geared to the needs of the workers, peasants and soldiers who form the main body of the working people; put prevention first; unite medical doctors of the traditional Chinese and Western schools; combine health work with a mass movement.** What we are to throw overboard are the ultra-Left, harmful practices sponsored by the gang of four in the name of "revolution in health work."

Q: Can you give some examples of the practices you just mentioned?

A: Why, of course. You've probably heard of the film *Chun Miao*, said to be "a true picture of the revolution in health work." In it the head of a commune clinic was uglified as a "capitalist roader" who was indifferent to the sufferings of the working people and a doctor discredited as a counter-revolutionary with bitter hatred for the working people. It is a film about a girl in the countryside named Chun Miao who "rebelled against them" and "seized power from their hands."

Were happenings like this all fictitious? No, this is what the gang of four actually did during the Cultural Revolution. Thousands of leaders of medical and health institutions, who had saved many lives and helped the wounded in the revolutionary wars, and who continued to serve the people wholeheartedly in the time of peaceful construction, were toppled; at the same time, doctors and experts of renown were branded "bourgeois authorities" and persecuted. This was followed by turmoil hidden under super-revolutionary slogans.

For instance, under the slogan of putting the stress on the rural areas, medical and health work in cities, factories and mines was weakened and thrown into disorder. This in turn held back progress in medical work in the countryside.

Under the slogan of criticizing "bourgeois intellectuals," large numbers of professionals were deprived of the right to engage in day-to-day work and scientific research. Under the slogan of doing away with "revisionist rules and regulations," the normal order in many hospitals was disturbed; even such a basic requirement as filling out a patient's case history and keeping it on file was dubbed an "obsolete usage" and abolished.

Under the slogan of tackling common diseases and frequently occurring diseases, research work in sophisticated medical science and technology and basic theoretical studies were criticized or discriminated against and dismissed as "theories divorced from practice."

The slogan of self-reliance was misinterpreted to mean any reference to the experience of foreign countries was tantamount to "worshipping and having blind faith in foreign

"Look at mamma at that time!" An ex-schistosomiasis victim showing her children her photo taken before she was cured of the disease.

things"; our medical personnel, as a result, had little access to foreign medical literature and data.

Q: Does this imply that it was not proper to raise the slogan of putting the stress on the rural areas?

A: Oh no. I was pointing out how the gang of four distorted the slogan. Health work in the countryside is our main job; this is beyond question. You see, ours is a big country with four-fifths of the population living in the countryside; after years of effort, the rural areas

Chiropractic massage along the spinal column to cure children's digestive troubles, an efficacious way of treatment in traditional Chinese medicine.

are still lagging far behind the cities in respect to sanitary conditions and medical attention. For some years in the past we devoted a great deal of energy to popularizing medical and health services in the rural areas. Now they need to be consolidated and improved — only on this basis can we talk about further progress. Therefore, in medical and health work to put stress on the rural areas remains an issue that affects the whole process of modernization.

The gang of four counterposed health work in the rural areas to that in cities. Anyone who showed an interest in working in the city was accused of overlooking work in the rural areas or of "serving urban overlords." The aftermath, for quite a long time, was that health undertakings in cities failed to make progress or were undermined.

To set things right, both urban and rural areas should be taken into account under an overall plan. This means that we should duly strengthen medical and health work in cities, factories and mines. This will in turn help train medical personnel for the countryside in a more effective way, supply more medicines and equipment, popularize the achievements of scientific research work and resolve some knotty problems. Only in this way can health work in the rural areas be steadily elevated on the basis of popularization and further popularized under the guidance of elevation, thereby gradually narrowing the differences between rural and urban health work.

Q: How do you appraise the training of barefoot doctors [paramedics, peasants as part-time medics] and the co-operative medicare hailed as the main achievements of the "revolution in public health"?

A: Both are the right things to do; they are being developed and raised to a higher level. But when the gang of four bragged that the two were "newborn things" which they had discovered, they were simply trying to take credit which didn't belong to them. These two things appeared long before the Cultural Revolution and developed later on because they are what the people need and because they are what we can afford at this stage of development.

Q: what is the determinant in the modernization of our medical and health undertakings?

A: Our problem now is we cannot renovate our equipment fast enough and, what is more, the vocational level and skills of our medical personnel are rather low. So is the level of management. There is a gap between the well qualified ones and their successors. Investigation shows that about 40 per cent of the nation's health workers have not had a sound professional training; their basic knowledge in this field is very poor. Therefore, the training of professionals at a faster tempo has become an urgent task and the key factor.

Q: In recent years, there has been emphasis on the establishment of a new medical science by combining traditional Chinese medicine with Western. What significance does this have for speeding up modernization?

A: It is our aim to establish a new type of medical science which is highly modernized and has national characteristics of our own. We have a treasure trove in traditional medicine which is of long standing and is very popular among the masses. New China encourages the combination of traditional Chinese medicine with Western medicine. This means carrying forward the special advantages of the former under the guidance of modern, scientific methods — a quick and effective way to developing a modern medical science in our country. So far it has proved to be highly successful in treating acute abdominal diseases, bone fractures, certain cardiovascular

diseases and other non-surgical ailments, as well as in the use of acupuncture and cautery and acupuncture anaesthesia.

Facts and Figures

OLD China was known as "the sick man of Asia," a political epithet pointing out the plight of a country haunted by poverty, hunger and pestilence. Much of this has been done away with in the last 30 years.

• The whole country now boasts 65,000 hospitals, 25 times as many as in 1949 at the founding of the People's Republic.

• There is at least one general hospital in each of the nation's 2,000-odd counties; all 55,000 people's communes have their own clinics; and practically every production brigade (each embracing one or several villages) which numbers 600,000, has its own medical station. Before liberation medical institutions in the Chinese countryside were few and far between.

• By the end of last year, China had 2,559 maternity and child care centres, 1,066 centres preventing and treating special diseases, and 295 academies (institutes) of medical science. In addition, there were 3,047 sanitation and quarantine stations.

• The whole country has 1,932,000 hospital beds, 24.2 times the 1949 figure. This includes a 5.9-fold increase in the number of beds in maternity and child care wards and a 35.7-fold increase in beds in children's hospitals.

• The proportion of the number of hospital beds in urban and rural areas was 74.8 : 25.2 in 1949 and 38.3 : 61.7 in 1979.

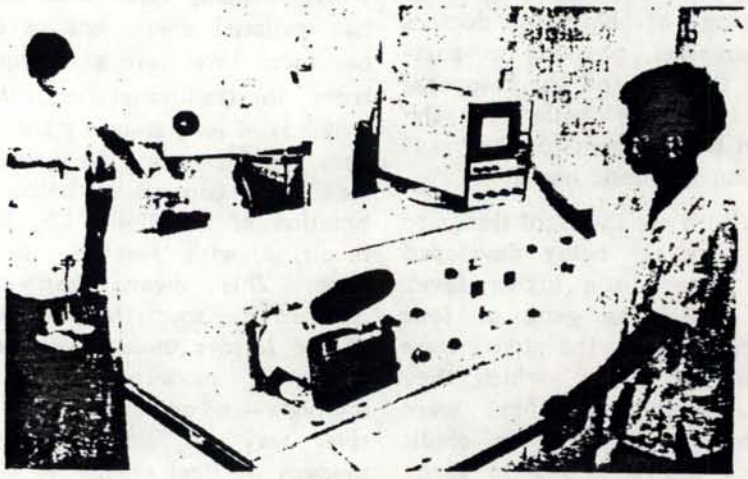
• There are now 2,642,000 doctors, phamacists, nurses and other technicians; the highly qualified ones among them number 436,000; medical persons of intermediate qualification number 1,108,000.

• Graduates from medical colleges in the last 30 years number 388,000, 40.8 times as many as the aggregate total between 1928 and 1948; those from middle schools of medicine number 800,000, over 19 times as many as the total in the two decades preceding 1949. There are also all kinds of courses for training barefoot doctors and health workers.

• Peasants trained as barefoot doctors number 1,575,000 (about one-third of them are women), as health workers 2,819,000 and as midwives 709,000.

• China is now more or less self-sufficient in medicines and medical appliances, the supply of which before liberation had to be imported; it is also exporting them in small quantities. The state has adopted a policy of low prices for medicines. The production of medicines is a non-profit endeavour. After six nationwide price reductions, medicines are now 80 per cent cheaper than in 1950.

• Among the infectious diseases common in the old society in our country, smallpox has long been wiped out; the plague, cholera, kala-azar and venereal diseases have been basically eliminated; typhus and recurrent fever are occasionally found in some places; polio is also under control; the incidence of measles is markedly low; that of tuberculosis, too, has been greatly reduced. Over 80 per cent of people infested with schistosomiasis, a disease which once prevailed in the nation's 11 southern provinces, one autonomous region and one municipality, and which threatened the health of 100 million, have been cured. With infectious diseases gradually brought under control, cardiovascular disease and cancer have become the main fatal diseases in many parts of the country.



Gamma-ray machine trial-produced in Shanghai, a kind of radioactive isotope scanner to examine visceral tumours. When connected with video tape, television set and electronic computer, it also handles data-processing to study ailments and functions of visceral organs.

CHINA'S POPULATION GROWTH: ANOTHER PERSPECTIVE

by Leo A. Orleans

China's accomplishments in public health and family planning have captured the imagination of many specialists around the world. While other Third World countries, all with much smaller populations and presumably with lesser problems, are still struggling to improve the health and well-being of their citizens, China, in a relatively short period of time, has managed to feed and clothe its people, provide them with medical care, and at the same time achieve a significant reduction in the country's rate of population growth.

While there is no question about the accomplishments themselves, disagreements do emerge in assessing the level of these achievements. In the case of vital rates, the problem, of course, is not that we contest Chinese claims, but that they have not made any claims to contest. In the last two decades, Peking has not released a single national figure for the country's birth rate, death rate, or rate of natural increase that even pretends to have any demographic basis. And yet, although the question of vital rates cannot compete with the publicity provoked by China's attention-getting domestic and international politics, the level of these rates is not a trivial matter. Each tenth of a percentage point in the assumed natural increase represents almost one million people and over a period of years can imply relative well-being or a potential crisis for China and its people.

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As someone who for many years has been documenting China's impressive progress in population control, public health, and medicine, I feel no compunction in stating my belief that since 1972 there has been a widespread tendency to place excessive reliance on vital statistics that are unrepresentative in coverage and often questionable in accuracy, resulting in estimates that exaggerate China's accomplishments in lowering the nation's levels of fertility and mortality. As a backdrop to the discussion, consider one set of rather extreme estimates by a casual observer of the China scene, estimates that are currently receiving considerable attention: birth rate, 14/1,000; death rate, 6/1,000; and a natural increase of 8/1,000.[1] Indeed, it is very tempting to take Peking's verbal commitment to family planning, recognize the improvements in health and the efficient distribution of free contraceptives, review the unequivocal successes in family planning reported by visitors to China, assemble the published figures for local areas selected by the Chinese for national or regional emulation, consider Peking's skills in control and organization, and then conclude that China has basically solved its population problem. I would argue, however, that the picture that emerges is not representative of the overwhelmingly rural nation with its 900 million people. China's achievements in the introduction of the birth planning program warrant admiration, but the criteria for success should not be set too high.

This article is not so much an argument for or against any specific set of figures, as it is an attempt to add perspective to the subject. Over 10 years ago, the late Premier Chou En-lai (周恩来) told Edgar Snow that "when we encourage the good and criticize the bad, it means that bad things surely still exist and good ones are not yet perfect."[2] The Chinese are still encouraging the good and criticizing the bad, and in planned parenthood and health, as in other fields, they still must overcome some serious and lingering problems.

Deficiencies in Chinese Population Statistics

There is no need to rehash the paucity and the tenuousness of Chinese population statistics. Historically rich in population data, China has both fascinated and frustrated generations of demographers attempting to reconstruct the population picture and to make sense of intriguing but capricious series of figures that go back (in fits and starts) thousands of years. Various counts and estimates attempted during the first half of this century by Chinese governments and institutions as well as by Western specialists have never produced an acceptable figure that would even temporarily pacify the serious users of such data. At the same time, no one seemed terribly concerned that the published figures were likely to be off by 25 million or more in either direction: given the level of China's development and the size of its population, the margin of error seemed quite realistic to both the Chinese authorities and outside users.

During a brief period in the mid-1950s, however, the size of China's population seemed to be at least temporarily resolved to almost everyone's satisfaction. In 1953-54 the Chinese took a reasonably conscientious nose count and reported that in the middle of 1953 the country's population stood at 582.6 million and that, based on a 30-

million-person sample, it was growing at 2% a year.[3] Although the 1953 figure still constitutes the base of all estimates and projections of China's population, the relative harmony it produced was short-lived. In 1957 and 1959 the Chinese published some questionable and internally inconsistent series of population and growth rates that were presumably based on a registration system that was admittedly deficient and on samples that were poorly selected. Other scattered demographic data published in the 1950s were similarly inconsistent. In 1966 and 1967 during the Cultural Revolution and again in 1976 following the death of Mao Tse-tung (毛澤東), individual provinces reported rounded populations that added up to about 811 million and 860 million, respectively. These data precipitated a new flurry of speculation, but once again internal inconsistencies and the vagueness of the year to which they might refer raised more questions than the data answered.[4] Perhaps the ultimate in the casual use of population data was provincial population figures published in a world atlas in 1972. The sum of the figures was 685.6 million, an incredibly low figure that was repeated in two subsequent editions of the atlas in 1973 and 1974.

In general, as the gap between the 1953 census and current estimates expanded and became satiated with a variety of consequential events, estimates of China's population began to show striking divergences. Thus, for the past decade, demographers have been wrangling over figures that differ by as much as 100 million.[5] Since the Chinese have done nothing to minimize the population dilemma, the high and low population estimates are perhaps the clearest illustration of the extent to which China's analysts differ in their interpretations of nondemographic developments and events in China over the past quarter of a century and their effect on that country's vital rates and consequent population growth.

Since the opening of China to selective travel, Chinese officials have responded to visitors' queries with qualifications and approximations, as did Chou En-lai when he said that "we tend to believe that it is more than 700 million, but not yet close to 800 million," or Li Hsien-nien (李先念) who lamented, "unfortunately there are no accurate statistics" on population. Hsieh Hua (謝華) in 1973 regretted that "figures are not yet available on birth and death rates in China."[6] Whether in direct terms or by implication, the Chinese are frankly admitting "we don't know the rate at which the country's population is growing" — something very difficult for foreigners to accept.

The reason the authorities in Peking have only an approximation of the nation's total population is that they have not set a high enough priority on obtaining such figures. A discrepancy of plus or minus 25 million, for example, would have virtually no effect on China's national plans and policies. On the other hand, cadres responsible for economic planning and social services at the local levels have a much greater need for more accurate figures. Thus, local population figures — especially those for total population — are much more likely to be reasonably reliable. The question is whether the growth rate of China's total population can be determined on the basis of these local figures. This article will, for the most part, ignore the developments in the urban areas and

focus on the population data for and descriptive materials about the four-fifths of China's inhabitants who reside in the countryside.[7]

The Nature of Vital Rates from Local Areas

Statistics on total population, growth rates, birth rates, and, only occasionally, death rates for small administrative rural units are a relatively recent phenomenon that seems to have been precipitated, at least in part, by the need for hard data as China pressed its intensive campaign for planned births. Since 1972 a large number of such figures have been available through two basic channels: directly from Chinese sources or indirectly from reports by visitors.

Chinese Sources

More and more local-level figures showing low birth and death rates have been reported in Chinese publications and transmitted over provincial radio stations over the past few years. These statistics of success are not simply the characteristic best-foot-forward approach used by propagandists around the world; in China, they are part of the widely used method that by the use of models, heroes, or good examples seeks to inspire the masses to increase production, to "serve the people," or to accept other values (such as a small family) that are deemed important to the socialist construction of the motherland.[8] Peking does not even pretend that these local vital rates from widely dispersed parts of China are typical of the country at large, or even of the province, adjacent county, or commune. The aim is to "publicize the experience of the advanced districts and units" and to "popularize the advanced models and advanced experiences" so that others will want to emulate them. Local competition is encouraged by searching out successes within each province or region of a province and describing in detail how success was achieved.

First Hand Reports

Visitors seldom see much more than some dozen of China's cities and about as many communes — usually in the proximity of Peking, Shanghai, and Kwangchow. These communes, simply by virtue of their locations and China's willingness to show them off to foreigners, are known to be anything but typical. More modernized and richer, they can boast of better medical and public health facilities and higher average-education levels among the people. It follows that they are more likely to have a lower level of mortality and be more receptive to mass campaigns aimed at reducing fertility.

From 1972 to perhaps as late as 1975, visitors could not easily obtain local population data (below the provincial level). A round figure for a brigade or commune might be cited, but questions about vital rates and natural increase would usually initiate a minor conference among the hosts, followed by a statement that the population was growing at a rate of 2% a year — the almost standard figure in those days for all parts of China. In the last couple of years, two changes in this procedure have been noticed. Through experience, Chinese hosts in rural localities accessible to foreign visitors have come to expect questions about population size and rate of growth. Consequently, they are now prepared to answer them.

The other change came about because Peking's emphasis on reducing family size has made rural cadres more conscious of population data in general and birth rates in particular. The cumulative effects of the planned births campaign were, in fact, beginning to pay off in a downturn of fertility, and the local authorities realized that it was necessary for them to have statistics that reflected these achievements. Not only did they stop giving visitors the standard 2% growth rate for population, but they started providing very precise figures — often carried out to two decimal points. Although most visitors are cautious in their reporting, introducing statistics with "we were told that...," no amount of warning seems to destroy the precision implied by such figures. For example, if a returning traveler states that the commune visited had 37,465 people and that the birth rate in 1975 was 14.66 per thousand, the death rate 5.28 per thousand, and the natural increase therefore 9.38 per thousand, there is a strong tendency not only to accept these figures at face value, but to generalize from these statistics to the country as a whole. This, of course, is very risky. The division that produced the above figures may have been very accurate, but the accuracy of the numerators (the number of births and deaths) and the denominator (the total population) is another matter.

It is not difficult to understand how the combination of figures from visitors' reports and from model communities published in Chinese sources might distort one's objectivity and cause unrealistically low estimates of China's fertility. It should be remembered, however, that the Chinese themselves are careful not to suggest that local figures are typical of the whole country; on the contrary, when asked, they are likely to say quite frankly that the statistics refer to the more progressive localities.

Planning of Births and the Birth Rate

Summary of Accomplishments

Conclusions with regard to any aspect of Chinese developments are almost inevitably controversial. While most observers will agree that the birth rate has dropped and is continuing to drop, they disagree about when the downward trend first became apparent and the speed with which fertility is declining. China's successes in this area have been widely publicized in both Chinese and Western publications — especially during the 1970s[9] — so that a brief summary of the relevant policies and apparent accomplishments (measurements aside) should suffice.

The tug-of-war between advocates of family planning and those who saw a rapidly growing population as a strength rather than a weakness started in the early 1950s. During the years that followed, the persistence of behind-the-scenes debate was more apparent from the fluctuating policies than from any official announcements from Peking. The first birth control campaign was started in the mid-1950s, and abandoned during the Great Leap Forward late in 1958. A second was introduced in the early 1960s, then ignored during the Cultural Revolution. The third campaign has been actively pursued in the 1970s. Each campaign had its own special characteristics and reflected the very different political, economic, and social conditions of the period. In general, however, neither of the first two campaigns resulted in drastic changes in China's

rural fertility, although the very gradual descent in the birth rate probably started in the 1960s. Despite only limited success, the educational value of the first two programs should not be minimized: these campaigns exposed large numbers of people to the generally taboo subject of sex and birth control, made the people aware of family planning methods, and provided the leadership with a much better understanding of the difficulties to be overcome if the program of planned births was to be successfully implemented.

The changes in the social, cultural, and economic environment of the Chinese countryside have made rural people much more amenable to family planning than they were 20 or even 10 years ago. Problems relating to traditions persist, but in general the young people of rural China are much better educated and indoctrinated and therefore much more prone to accept even unpopular policies that are said to benefit socialist construction. This is especially important in relation to the young women of China. They are not only more literate, but almost surely participate in production and in a variety of nonfamilial community activities. As contributors to the family income and with the peer-support they presumably gain through frequent "discussion, analysis, and exchange of experience," the "new Chinese women" are likely to have a greater say in the number and spacing of their children. And while attempting to change men's attitudes toward women, the Chinese have also made some progress in convincing the rural population that old-age security no longer must depend on having many sons.

Since the Cultural Revolution, the planning of births has become a mass campaign. This means that China is attempting to motivate smaller families not simply by focusing all the available resources and means of persuasion on the women in the reproductive ages, but, in a sense, by "going over their heads" and making the planning of births the responsibility of local governments, production units, residential communities, birth control committees, public health personnel, and almost every other segment of the society.

Finally, the Chinese now have the prerequisites — both the means and the superstructure — to implement the policy of planned births. By all accounts China is now producing a variety of contraceptives in adequate quantities while at the same time significant research is continuing in all facets of contraceptive technology.[10] Since the Cultural Revolution, China's health system, with its large numbers of paramedical personnel, has been much more equitably distributed in the countryside. Whereas the pressure for limiting family size comes from within the community itself, health personnel are responsible for educating the population, distributing the free and readily available contraceptives, and overseeing their use — on a much more personal basis than is possible in almost any other society. All these factors make a strong case for a decline in China's fertility.

Lingering Problems

Nevertheless, problems still face the authorities in their efforts to reduce the size of the Chinese family. Basically, they grow out of a predicament characteristic of all developing nations: it takes time to change centuries-old traditions and attitudes in peasant societies. Even a mind-molder like Mao Tse-tung

recognized this obstacle. In discussing the prevalence of superstitions in China, he once said that "it is often more difficult to combat the enemies inside the people's minds than to fight Japanese imperialism." Indeed, after years of indoctrination, most of the people who live in rural China still prefer to get married early, have a strong sense that children (and especially boy babies) are a joy and a blessing rather than a burden, and are reluctant to give up many of the customs, superstitions, and attendant festivities that brighten their lives.

Cultural Revolution publications carried frank criticisms of conditions in China during the 1960s. The persistence of rural traditions was a popular subject, not only for the publications and posters produced by the radical Red Guards but also for some of the more orthodox publications.

Actually, it is not really surprising that "capitalist and feudal customs and habits" were still present in the 1960s; as already pointed out, centuries of traditions are not easily eradicated. Even when they are not in evidence, they seem to be in a dormant state, emerging whenever there is the slightest breakdown of authority, as occurred during the Cultural Revolution. There is ample evidence of the "reappearance" of traditions in areas where "revolutionary mass criticism" had presumably "solved" the problem. Continuous efforts to break traditions are periodically intensified into major national drives, such as the 1973-74 campaign to criticize Confucius (and Lin Piao 林彪). The direct correlation between the elimination of old traditions and the potential success of late marriage and planned parenthood is no doubt clear, but should become even more obvious when the specific components of the relationship are discussed.

The Role of Women

A direct correlation exists between successful implementation of family planning programs and the position of women in the society. Although Chinese urban women occupy greatly enhanced political and economic roles, they and their rural sisters are a long way from "holding up half the sky." Neither the victory of the proletariat, the progressive 1950 Marriage Law that attempted to fix the rights and duties of husband and wife, nor the Constitution, which stated that women shall enjoy equal rights with men, automatically emancipated women. The government did set up the necessary framework for change, however, and with varying degrees of enthusiasm and success it has attempted to overcome deeply implanted traditions regarding male and female roles and duties. The only marginal success in "reforming the existing customs and habits" and "eliminating the concepts of the exploiting class in slighting women" is evident from the continuing campaigns against these "evil winds."

Peking's insistence that "agricultural production is a right and duty of rural women" has resulted in an extremely high participation of women in the rural labor force, but it did little to relieve them of their traditional domestic duties. Thus, in practice, the rural woman must not only satisfy the feudal concept of "virtuous wife and good mother" but she must be a revolutionary producer as well. Although campaigns to assure equal pay for equal work are still carried on, only model communes report that greater equity has been achieved, and in most of rural China males' greater

physical strength continues to dictate a separate work-point scale for men and women. Efforts to get rural parents equally to send daughters as well as sons to primary schools are also still being made, but a 40-60 ratio is not uncommon: girls are more likely to be kept at home to take care of younger siblings while the mother is working in the fields.

Still, women are better educated, involved in production, active in mass organizations, and much more likely now than in the past to hold leadership positions within the production unit or the community. Thus, it would not be surprising to see a significant change occur in the next generation. For the present, however, Chinese propaganda organs have good reason to continue to "criticize vehemently the class and historic origin of the fallacy, 'predominance of man over woman,' which obstructs the unfolding of the birth control work...."[11] A most incisive observation by an Indian scholar provides an appropriate summation: "Women's status in China has remarkably changed without essentially changing the man-woman equation."[12]

Filial Piety and Commercial Transactions

The effectiveness of the drive for late marriage and planned births is also handicapped by the persistence of filial piety in much of rural China. Constant attacks are made against parental and family bonds in general and more specifically against the pressures parents exert in urging early marriage and numerous grandchildren. The general approach to dealing with parents is suggested to youth in the following example:

> A proletarian revolutionary must apply the method of class analysis to his parents and seniors. He must first determine to what class they belong and what class interest they represent, and then decide upon the attitude to adopt toward them; and must never subject himself to the restrictions of the so-called "filial piety" of feudalism.[13]

The implied fallacy in such statements is, however, that the overwhelming majority of the people in the rural areas belong to the acceptable but most tradition-bound lower or middle peasant classes; if they express unsanctioned attitudes it is not because they are of the exploiting class. Furthermore, attacking filial piety while maintaining a disciplined youth within a system that continues to value the basic family unit is an obvious problem. The warnings against blind obedience to parents and the traditional belief that "parents are always right" are, therefore, often moderated by a counterbalancing statement:

> ...while opposing "filial piety" as the feudal morality, we do not by any means say that we may disobey everything that our elders say. We must respect the elders among the laboring people. We should listen attentively to their correct opinions.[14]

The importance of parents in marriage in the rural areas is easy to appreciate. Notwithstanding the freedom of choice guaranteed by the 1950 Marriage Law, factors such as social patterns and customs, housing conditions, density of population, and the economic and political demands on the time of China's youth make it difficult for young people to meet, to court, and to decide that they want to enter matrimony.[15] The combination of pressures by parents, desire of young people to get married,

and the difficulty of establishing independent male-female relationships that might lead to marriage makes it extremely difficult to change the traditional role of parents and go-betweens who carry out negotiations between families of eligible young men and women. The attacks against the idea that "parents are more important than the sky" and that "you must marry the one they pick for you and you have no right to choose,"[16] are too widespread to put the blame on "a handful of class enemies lurking in dark corners."

From careful and intensive interviews conducted in Hong Kong among refugees from Kwangtung province, Martin Whyte and William Parrish conclude that uneven progress has been made in attacking family ceremonials, that the present nature of these ceremonials is closer to the traditional forms than to the idealized forms presented in the press, and that "as long as the new, officially espoused ceremonies are so devoid of gaiety and a holiday atmosphere, and as long as the family remains such a crucial focus of individual lives and community activity...the desire to engage in elaborate life cycle ceremonials will continue to be expressed."[17]

Although efforts in the cities to raise the marriage age seem to have been reasonably successful, the average marriage age in the rural areas has not been raised anywhere near the level suggested by the leadership. Among peasant folk, the following attitude toward unmarried women appears to be still very much in evidence: "Their hair is turning grey and they are still stuck with the family; they must be inferior goods which nobody wants."[18]

Desire for Large Families and Boys

The desire of the Chinese to have large families is a trait they share with most agrarian societies. Blaming the Confucian doctrine that the most serious of the unfilial acts is not to have descendants is a convenient oversimplification. The structure of the social system is such that children are a valuable economic asset, for China's rural economy is not all that different from other traditional societies in which the net flow is from child to parent. Children do numerous chores in and around the house; as they get older they earn work points; and in later life, they do, in fact, care for their aged parents, although institutional facilities are available for childless old people.

The Chinese have not been able to even out the economic value of boy and girl children in the countryside. The older they grow, the greater the disparity of their contribution to the well-being of the family. Even today a daughter is considered a transitory asset: "a daughter who has been given away in marriage is like spilt water" — she will move in with the family of the husband and "belong to other people."[19] Thus, the economic plight of a peasant couple having only daughters can be quite serious. To counteract the custom of the bride moving in with her in-laws, "Party committees actively encourage and enthusiastically support any man who chooses to settle in his wife's family after marriage"[20] — a most serious break with tradition. Although men who comply with this advice are singled out as model revolutionary citizens, it is doubtful that the practice has gained any measurable popularity in rural China. Thus, for peasants, the present son, rather than the absent daughter, is most likely to provide

old-age security and keep them out of so-called "happiness homes." In other words, while the authorities attempt to convince the peasants that they will be no worse off with fewer children, even if they are girls, and the nation will be better off as a result, the old Chinese saying, "the more sons the more fortune," is still not outmoded.

A recent newspaper item based on a little-noticed article in the official *Chinese Medical Journal* was all too revealing. Chinese doctors in the steel city of Anshan developed an almost foolproof way of determining the sex of the fetus in order to "help women who desire family planning." Of the 30 women who received abortions following this test, 29 had been told that they would have girls.[21]

Effects of Traditions on Planning of Births

To stress the idea that the planning of births should not be considered a "soft task" — and therefore appropriate only for women comrades — the central leadership has been calling on "industry, agriculture, commerce, education, the army and all departments" to "grasp birth control as an important task." The most recent series of provincial family planning conferences took place in early 1977, at the height of the attacks against the "gang of four." Did "the gang of four and its sworn followers" sabotage the planned parenthood program, as repeated at each of the conferences? Is it true that Chiang Ching (江青) — Mao's widow and the leader of the gang — did not believe in birth control, claiming that "it would be alright if women gave birth to many children"?[22] It is difficult to say how seriously one should take these obviously exaggerated statements made at the height of a mass campaign to discredit a group of leaders. Scapegoats have often been used for policies and programs that floundered or failed to achieve the hoped-for results. The smoke-fire aphorism may well be applicable in this case, for if the people responsible for the reduction of China's birth rate needed an excuse for snags and delays in the program, the "gang of four" could not have surfaced at a more ideal time.

China clearly has experienced not only some of the well-publicized achievements in its program of delayed marriage and planned births, but also some setbacks. If performance has not always matched Peking's expectations, the neglect of the local cadres and the black deeds of the "gang of four" provide only part of the answer. For the rest, we must come full circle. Considering the intensity of the program and the widespread availability of free and effective contraceptives and surgical services, the blame must be placed squarely on the difficulties encountered in changing traditional attitudes and customs of China's peasant population. In this connection one gets the impression (and only an impression) that, while Peking has a general picture of the obstacles that tradition presents, the central authorities — most of them urban born and bred — still do not appreciate the magnitude of the problem nearly as well as some of the observers looking on from outside, who have the added advantage of familiarity with similar handicaps in other developing countries.

Health, Medicine, and the Death Rate

In comparison with the divergent estimates of China's birth rate — ranging from a low of 14/1,000 population to 30/1,000 or higher — the differences in

estimates of crude death rate may appear insignificant. In relative terms, however, they are just as great, ranging from approximately 6/1,000 to 12/1,000 for the mid-1970s. One of the reasons for the discrepancy can be quickly disposed of, for it stems from the crudity of the measure itself. Because the crude death rate is a simple division of the total number of deaths by the total population, it is naturally very dependent on the age structure of the population. In other words, a young population — represented by a population pyramid with a large base due to relatively high birth rates — is likely to have fewer deaths than a population that has proportionately larger numbers of old people. Ideally, the expectation of life at birth, which eliminates the biases of the age structure by using age-specific mortality rates, is a much preferred measure. It is virtually certain, however, that such data are not collected in China. What this means, then, is that whether one builds hypothetical population models to arrive at life expectancy or attempts to deduce the level of the crude death rate, the biases and preconceptions regarding China's past demographic experience — when considered in the analysis — emerge at the other end as estimates. On balance, the crude death rate perhaps requires less specious reasoning.

No one disputes that China has a young population and therefore a relatively low crude death rate, so the differences in the death rate estimates quoted above hinge essentially on how one interprets the health policies, programs, and facilities that have developed in the country over the past quarter of a century. Since China's accomplishments in public health and medicine have probably received more publicity than any other sector of development, they will only be summarized here. The discussion will focus on the continuing problems in health care that get virtually no publicity — in part because, with such striking achievements, it seems almost unfair to call attention to some of the deficiencies that continue to plague China's health system. In attempting to comment on the level of mortality, however, it is obviously such problems that must be discussed.

Review of Progress in Public Health (1949-66)

In line with Chairman Mao's belief that "when the body is strong, then one can advance speedily in knowledge and morality,"[23] the new leaders of China placed the highest priority on the improvement of the incredibly poor health conditions they inherited in 1949. The attack on disease and poor health was multifaceted, but several major principles or approaches can be identified — all of them reflecting practical considerations that matched China's goals and resources.

The first decision made by Peking was an essential and obvious first step: the major emphasis was to be placed on preventive rather than curative medicine. Literally hundreds of millions of people were organized and motivated to clean up the country, learn about elementary sanitation and personal habits of cleanliness, and participate in massive inoculation drives and other health- and environment-related activities. The emphasis on prevention has not diminished with improved health conditions. The slogan "prevention is predominant" is just as popular now as it was 20 years ago, and every locality in China continues to have at least one general clean-up campaign every year.

Another basic factor in Chinese health is the role of Chinese traditional medicine. Over the years efforts have persisted to raise the stature of traditional medicine, integrate it with Western medicine, and fully utilize it in the national health program. Once again, this was a very practical move. Mao Tse-tung was well aware that the time and cost involved in providing a population of over 600 million with Western medical services and facilities would be beyond China's capabilities. On the other hand, the half a million or so medical practitioners and herbalists of various degrees of competence could continue to serve people as they always had and at a minimal cost to the central government. The problem was to organize these heterogeneous and scattered individuals within a viable delivery system, improve their competence, and have skeptical Western-trained physicians accept them as colleagues. To break down the resistance of the medical professionals, add to the stature of native medicine, and force integration, a requirement was introduced in the mid-1950s that all doctors of Western medicine study Chinese traditional medicine. The enthusiasm with which this and other measures designed to facilitate the integration of the two medical systems were pursued has fluctuated over the years.

To increase health manpower as rapidly as possible, China adopted a varied approach to medical education. While during most of the 1950s and through the middle 1960s Chinese medical colleges were offering a more or less traditional Western medical education, large numbers of paramedics of different levels of competence were being trained in medical middle schools and in a variety of part-time and spare-time medical courses. Thus, it is estimated that between 1950 and 1966 China graduated over 180,000 persons with higher medical education, about 400,000 persons trained in secondary medical education, and perhaps several million "health workers" who received basic training in public health and preventive medicine by attending half-farm, half-study medical schools and a variety of other short courses in public health.[24] In this way China trained a large body of personnel capable of providing the people with primary health care.

China's health policies have had their ups and downs, but the verdict is undisputable: with limited resources and innovative approaches, the Chinese have managed to overcome some staggering health problems and, in the process, to show the world how much can be accomplished in the health field through self-reliance, mass mobilization, and determination. But this is only one side of China's health picture.

Criticism of Rural Health Before the Cultural Revolution

It is not difficult to understand how China got its reputation, even before the Cultural Revolution, for having basically solved its health problems. The elimination of most communicable diseases and the implementation of policies that improved health and sanitation resulted in an uncritical acceptance of the intensive propaganda that stressed the present by pointing to the ills of the past. It took the Cultural Revolution and criticism by the Chinese themselves to bring into the open what should have been recognized all along — the widely scattered health and vaccination stations, health clinics, and health rooms, staffed by paramedics and part-time health

personnel, could not provide the hundreds of millions of people in rural China with much more than preventive care and information about environmental sanitation and personal hygiene. Curative services in rural China ranged from minimal to nonexistent.

The Red Guard press often attacked rural health care. Moreover, the Establishment sources were no less critical of the health conditions in the rural areas, publishing numerous articles on the subject.[25]

The disparity between rural and urban health conditions was clearly recognized by Mao Tse-tung and expressed in his now famous June 26, 1965, directive that did not receive publicity until it was published in the Red Guard media to commemorate its third anniversary in 1968. Mao's directive stated:

> Tell the Ministry of Public Health that it works for only 15% of the total population of the country and that this 15% is mainly composed of gentlemen, while the broad masses of the peasants do not get any medical treatment. First they don't have any doctors; second they don't have any medicine. The Ministry of Public Health is not a Ministry of Public Health for the people, so why not change its name to the Ministry of Urban Health, the Ministry of Gentlemen's Health, or even to the Ministry of Urban Gentlemen's Health?[26]

Picking up on this theme, the Red Guards contended that, during the early 1960s when China was undergoing economic difficulties, health facilities available to the peasants actually declined. According to their statistics, between 1960 and 1963 the number of commune health centers declined from 290,000 to 70,000, the number of urban clinics rose from 43,000 to 84,000, and the number of doctors not working in government facilities (presumably reverting to private practice) increased from 16,000 to 86,000.[27] Furthermore, the Ministry of Public Health was accused of setting up model rural health centers in the proximity of large cities that were used to accommodate high-level bureaucrats.

Considering the advances that have been made in rural health, primarily through preventive measures, Mao's attack on the Ministry of Public Health may seem unfair. Still, the health system was urban oriented and health personnel preferred the amenities and the much more advanced medical facilities and equipment of the cities.

There is no reason to dispute Chinese allegations of deficiencies in rural health care. While the high mortality diseases were, for the most part, eliminated, the poorly trained and widely dispersed medical personnel in the countryside were hard put to "cure disease without spending money." It seems reasonable, therefore, to suggest that during the first two decades of the communist regime, the crude death rate in rural China was probably not much different than it was in many other Third World countries in Asia and Latin America.

Progress and Problems in Rural Health Care Since the Cultural Revolution

The violent Cultural Revolution attacks on the Ministry of Public Health, Western-trained health personnel, and the health delivery system in general forced some drastic reforms in every facet of China's health delivery system but especially in an effort to correct the rural-urban imbalance in health care.

The reforms were essentially launched on four interrelated (but not necessarily integrated) fronts: an effort to shift medical manpower into the countryside, an increase in the rural health budget, a major reorganization and reorientation of medical education, and a strong drive to introduce cooperative medicine into the rural areas.

Shifting Medical Manpower and Resources. The Cultural Revolution's most immediate effect on the health front was the transfer of hundreds of thousands of medical personnel, from paramedics to doctors, to the countryside. Although medical professionals were reluctant to leave the cities, by 1973 many had done so — "300,000 city medical workers and medical school graduates went to live and work in the countryside, and almost 400,000 medical personnel made tours of the rural areas in mobile medical teams."[28] These figures were up-dated in an April 1977 article in *People's Daily*, which reported that by the end of 1975 1.1 million medical workers from the cities had joined medical teams to tour the countryside and that 100,000 more had settled down in the rural areas.[29]

The two reports just cited serve as a good point of departure for a few comments on this subject. The obvious discrepancy between the 1973 statement that "300,000 city medical workers and medical school graduates" settled in the countryside and the 1977 one that "100,000 medical workers settled in rural areas" by the end of 1975 is difficult to rationalize. It is possible that the inclusion of "medical school graduates" in the earlier statement means that this larger figure comprises not only transferees but also graduates of medical schools between 1970 and 1973. This, however, could hardly account for the 200,000 discrepancy, since there were not nearly that many medical school graduates during those years. More likely, the discrepancy stems from the question of how permanent were the transfers during and immediately after the Cultural Revolution. Undoubtedly many of the transferees — and almost all of the Western-trained doctors who (according to the radicals) were in greatest need of reeducation — returned to urban hospitals, which is not very surprising since not only would their knowledge and skills be wasted in the primitive environment of much of rural China but, above all, their services were needed in the much better equipped urban hospitals. Furthermore, although all medical personnel are still required to spend about one third of their time in the rural areas, in practice the annual stint is not strictly adhered to because, as one Chinese doctor volunteered, their heavy work schedules make it difficult for them to leave their permanent assignments.

The meaning of the statement that 1.1 million medical workers toured the countryside in mobile medical teams also depends on the perspective from which it is viewed. A positive interpretation would suggest that it reflects a serious commitment to rural health on the part of the authorities. A more critical look raises some doubts about how rapidly China is managing to improve the shortage of medical manpower in the countryside. "By the end of 1975" tells us that the 1.1 million figure covers at least six years between 1969 and 1976 and may even go back to the initiation of mobile medical teams in the mid-1960s. How far into the hinterland did the mobile medical teams go and how long did they stay there? We do not know

specifically, but we do know that many of them leave the cities for just a few weeks and concentrate on areas that are not too distant from their home bases.[30] How many of the "1.1 million medical workers" were doctors? Again, we don't know. But considering the known reluctance of medical doctors to leave their urban facilities and patients, it would seem reasonable to assume that their representation on mobile medical teams is small and more often limited to the shorter and closer tours. There is no intent, however, to minimize the role of the mobile medical teams in the rural health services — they do indeed provide an important service in health care and the education of rural staffs. The question is whether the urban medical personnel would be more effective if they were based in the countryside on a full-time basis.

Increasing the Health Budget. Almost all of the available information on the increase in state investment in rural health work is descriptive rather than quantitative. We do know, however, that prior to the Cultural Revolution the central government spent 70% to 80% of the national health budget (an unknown quantity) in urban areas and that in the early 1970s these figures were almost reversed, with 60% of national health expenditures going to the rural areas.[31]

In 1977 this figure rose to 65%.[32] That the above figures are still considerably below the proportion of the population living in rural areas (estimated at between 80% and 85%) is quite reasonable. Not only are the medical facilities and equipment in the urban areas much more sophisticated and costly and the salaries (as opposed to work points received by most rural health personnel) much higher, but the nonrural allocation of the national health budget probably includes the Academy of Medical Sciences and the cost of medical research. Furthermore, urban hospitals do serve a small proportion of peasants who require special attention and manage to obtain the necessary medical referrals.

Exactly how the state health funds are disbursed in the rural areas is not altogether clear, but most of them go into capital construction. They probably also pay the salaries of full-time medical personnel down to the *hsien* (county) level and perhaps even cover full-time medical personnel in commune hospitals. The cost of health care to the individual, however, comes for the most part from the family budget and from the medical fund of the accumulated public funds of the brigade and the commune.

Revising Medical Education. One of the most important changes made by the Cultural Revolution was to revise radically the content and duration of higher education — in this instance, medical education. In the past, said the *People's Daily*, "the students would study nothing relative to medicine the first year, go nowhere near a hospital the second year, do nothing in connection with a patient in the third year and fourth years, and come close to a patient merely to view him in the fifth year."[33] To correct this situation, medical colleges (as was the case with all schools) were closed for over three years. In the interim, time was spent discussing just how to implement the main points of the recommended changes, such as the reduction of the curriculum from five to three years, the renewed emphasis on integration of Western and traditional medicine in education, and the inte-

gration of theory and practice in the study of medicine.

It was easy enough to make the basic decisions, but the transition was undoubtedly more traumatic than had been anticipated. When the first universities opened up in 1970 and in following years, the new entrants from worker, peasant, and soldier backgrounds were several years removed from their secondary education and were simply not prepared to undertake even the simplified medical curriculum. Furthermore, there were unanswered questions about the use of examinations and grades, how to integrate courses in traditional medicine into the new curriculum, and how to modify and revise medical textbooks for the new students. Raising the status and authority of professors who, as bourgeois intellectuals, had suffered considerable abuse at the hands of the students during the Cultural Revolution was another problem. The shakedown period lasted several years.

Gradually, as more educational institutions began to reopen, some of the more radical demands of the proponents of the Cultural Revolution began to be modified, but the compromises did not affect the basic changes that were brought about in the educational system.

Thus, until recently medical schools were of three-year duration; they accepted students with anywhere from eight to 10 years of primary-secondary education (albeit mostly from the ranks of barefoot doctors and other lower medical personnel). The streamlined curriculum eliminated all courses considered irrelevant or duplicative and, from the very first year, it was combined with practice. Medical schools no longer trained specialists, the Chinese stated with pride, but produced generalists who could handle the everyday problems of the people.[34]

The new push to upgrade science and education initiated in the latter part of 1977 will undoubtedly improve the quality of higher education in China, but it is still too early to tell whether or not this policy will have a similar effect on medical education. It seems very likely that in the medical field China will once again resort to "walking on two legs": while additional emphasis will be given to the selective training of advanced medical specialists, the post-Cultural Revolution policy that entrusted three-year graduates with providing primary health care for the peasants will continue.

The focus on pre-college level medical education, evident before the Cultural Revolution, has been further emphasized and innumerable courses are now being offered to train people for the public health system. Major responsibility for the training of paramedics and for upgrading the qualifications of people already working in the health field is placed on medical colleges (many of which have established rural teaching centers), on county and commune medical facilities, and on the mobile medical teams. Included among the paramedics are, of course, the highly publicized barefoot doctors. These young peasants, with at least a primary level education, receive three to six months of training and then go on to provide the basic health care to the hundreds of millions of peasants at the team and brigade levels. They do, however, upgrade their qualifications both through experience and through short annual courses.

What does all this mean in terms of the total medical manpower that serves the Chinese people? Statistics are scarce and estimates precarious. Ball-park

figures, however, would suggest that as of mid-1977 there were in China approximately 300,000 doctors with higher education (including dentists and senior pharmacists), ranging from Western-trained specialists to graduates of the present-day three-year medical schools. There were, perhaps, 700,000 to 800,000 middle-level medical personnel, most of whom are graduates of secondary level medical schools or equivalents.[35] There were also 1.5 million barefoot doctors and 3.9 million part-time health workers.[36]

It is probably safe to assume that since the overwhelming proportion of graduates of medical colleges (even since the Cultural Revolution) work in hospitals, most of the estimated 300,000 doctors with higher education are either in the cities or at the *hsien* (county) level hospitals in smaller towns around the country. Assuming that there are at least two middle-level medical personnel for every physician in a hospital, then perhaps three-quarters of the 700,000 to 800,000 medical workers of this level of education are also located in urban areas. Since hospital care is available to the average peasant only through a series of referrals, he relies for basic medical care on part-time barefoot doctors and part-time health workers.

It is estimated that there are about 5 million production teams (usually natural villages) in China,[37] and health authorities maintain that they would like to see a part-time health worker in each of them. Since in 1977 it was reported that there were only 3.9 million health workers in the country and since some of them undoubtedly work at the brigade or commune levels, there is probably no more than an average of one part-time health worker for every two teams. With the most limited training, these part-time health workers (usually women whose main responsibility is midwifery) can probably do little more than provide simple advice, dispense some common medications, and oversee the basic sanitary requirements of the community. All but the most common problems would be referred to the brigade health room or commune clinic (whichever is closer), where the patient would get to see a barefoot doctor — a sort of jack-of-many-medical-specialties but certainly not a master of any of them. Although there are probably more than 1.5 million barefoot doctors in China, the figure becomes much less impressive when seen in the context of rural needs. China claims that each of the 750,000 brigades has a health room or clinic staffed by at least one barefoot doctor; we also know that some larger suburban brigades report as many as 15 barefoot doctors. Clearly, there is no excess here and it is not surprising that health officials have recently been reprimanded for claiming that they are "unable to do health work well because of personnel shortages."[38]

In a way, the very survival of the barefoot doctors is a feat of sorts; the political flip-flops over the past few years created a climate in which paramedics were attacked from both the right and left. During the height of the campaign against him, Teng Hsiao-p'ing (鄧小平), "this arch unrepentant party capitalist-roader," was accused of opposing the whole concept of barefoot doctors and the cooperative health-care system.[39] A year later, the "gang of four" — presumably Teng's bitterest opponents — were also being charged with wanting to "strangle and destroy" the barefoot doctors and the cooperative health-care system.[40] Despite these formidable opponents, the barefoot doctors seem to be

reasonably effective in fulfilling their functions and continue to comprise the foundation of China's rural health care.

Rural Cooperative Medicine. China had no rural medical insurance until the Cultural Revolution, which meant that a serious illness could deplete what little savings a Chinese peasant family had been able to accumulate. Scattered health stations and clinics essentially concentrated on providing free or low-cost preventive care.

As part of the move to improve rural health care services during and after the Cultural Revolution and aware that the central government could not afford to underwrite an insurance program to cover 650 million or more people in rural China, Peking launched a nationwide campaign to encourage rural production units to voluntarily organize cooperative medical services. Under the pressure of national and provincial health cadres, the number of brigades organizing such services grew rapidly during the early 1970s. Since the burden of organizing and running the medical cooperative system was placed on the local production units and the stress was on self-reliance, there evolved a great variation in the health facilities, manpower, and costs associated with individual cooperatives. In general, however, there is an annual membership fee of between one and two yuan per person, plus a minimal registration fee of five to 10 fen for every visit to the clinic. Other funds for this health insurance system are allocated from the commune's public welfare funds and vary significantly depending on whether the particular commune is "rich" or "poor." This factor undoubtedly also determines whether the treatment of a specific illness will require some supplementary payments by the patient.

By the end of 1973 it was reported that about 70% of the production brigades under the people's communes had set up cooperative medical care.[41] In 1977 the proportion of brigades belonging to a cooperative medical system increased to 85%, but only covered 80% of the population living in rural areas.[42] Assuming that the 5% discrepancy represents the rural nonagricultural population (perhaps covered by some other form of medical care), there are still well over 100 million people in rural China not covered by health insurance — a number almost equivalent to the populations of both France and Germany.

Two basic reasons why cooperative medical services are not universally available in rural China are the resistance of the population and the resistance of the local leadership. Chinese peasants often are not enthusiastic about cooperative health care because of cost. One or two yuan a year per person (including children), plus a small registration fee for every visit to the clinic, plus occasional other small fees may seem like a bargain, but for a husband, wife, and three children, the annual expenditure for health care can be a significant proportion of the family's cash. The basic idea of insurance — of paying a small amount now in order to get possible benefits later — is foreign to the Chinese peasant, and many of them are willing to take a chance on their health and save the money.

Enthusiasm is also less than universal among local cadres responsible for organizing and running cooperative health care. Very often they would prefer to spend the commune's accumulated public funds on equipment and facilities that would result in increased production. Their motto is often: "When sickness comes, cure it; if no sickness arises,

forget it." Furthermore, overruns have occurred in the program. Thus, registration fees are now charged by the brigade clinics because, when visits were free, there was an overuse of the facilities, resulting not only in serious deficits but also in much wasted production time. In some instances, the excessive costs of a cooperative health program caused its abandonment. For example, after raising the necessary funds and purchasing the equipment, one unit in Kwangtung province discovered that the barefoot doctor "extravagantly wasted the funds of cooperative medicine" and caused the program to collapse in less than two months.[43] Many complaints have been raised about the "random and unauthorized spending" of collective medical funds. Another common problem apparently arises in relations between the administrators of the brigade cooperative medical service and the urban hospitals. If the patient manages to enter the county hospital, the cooperative is billed for the expenses. Because of nonpayment of these charges, however, some hospitals refuse to accept peasants and others will admit them only if they pay in advance.

Improvement in the quality or the popularity of cooperative medical services will be slight until and unless the central government sees fit to relax the policy of self-sufficiency and inject some funds to further subsidize rural health care.

Recent Confessions

Just as the "gang of four" was charged with disrupting China's planned birth program, a flood of reports accused them of sabotaging the health system. Although the recent rhetoric referring to "the gang" is as difficult to accept at face value in the case of health as it is in the case of family planning, there is no reason to doubt the conditions described in the official Chinese media. Innumerable reports point out that because of the activities of the "gang of four," health work suffered considerable sabotage in recent years and "efforts to develop the patriotic health campaign slackened."[44] The references to troubles in maintaining the public enthusiasm for yet another patriotic health campaign are especially frequent, and "the gang" is blamed for the fact that these campaigns have been "ignored by the people." Sanitation has suffered as has the perpetual battle against "the four pests" (not to be confused with the "gang of four"). Reports indicate that the setback in environmental hygiene has been especially evident in drinking and eating establishments where inspection is often cursory or totally absent. It was also in the spring of 1977, by the way, that reports from Hong Kong and from foreign visitors began telling of some serious outbreaks of meningitis, hepatitis, and other infectious diseases.[45]

Many of the provinces followed suit with their local complaints. For example, in Yunnan "the confidant of the gang of four and those several people who closely followed them in doing evil things" are said to have seriously interfered in and damaged the public health system.[46] In another example, the person in charge of the battle against schistosomiasis in China's southern province was accused of following "the gang" and totally neglecting his work "under the pretext of 'no time to attend to it'" — in Kiangsu province alone 30,000 patients had to be treated for snail fever.[47]

These conditions are neither surprising nor unusual when one remembers that only 25 years ago the Chinese peasants were almost oblivious of sani-

tation and divorced from medical attention. They also should not be overemphasized — there is no doubt that many of the current difficulties will be corrected. They are worth comment only to counteract the all too common — and erroneous — notion that China has "solved" the people's health and medical problems.

Summary and Speculation

The parameters of this paper, stated initially, included the promise not to lean toward any specific set of vital rates for China, but rather to attempt to provide perspective on some of that country's persistent problems in the areas of fertility control and public health. What follows then is not an argument but a brief summary of what has preceded, supplemented by a scattering of personal observations and opinions.

First, the birth rate. Neither the Chinese figures for local birth rates nor those brought back by visitors are characteristic of China as a whole, and all indications are that they are representative of model areas that have experienced unusual successes and have therefore been singled out for public display. Peking is not modest in its claims so there is no reason to believe that any precipitous drop in the birth rate would be kept a secret. Chinese media do not claim a drastic drop in the nation's birth rate. Moreover, they have been quite frank in discussing the problems encountered in implementing the planned birth policies. For years now China has waged a campaign to rid the peasants of traditional attitudes that favor early marriage, support large families, value male children, and preserve filial piety which, in its own right, ordains many children and grandchildren. Furthermore, the seasonal nature of the peasants' work and the looser organization in the countryside (supervised by peasant cadres with a similar heritage) make it more difficult to adhere to family planning and late marriage practices as prescribed by the leadership in distant cities. Finally, because of the reduced infant mortality during the first decade after the creation of the People's Republic of China, large cohorts of young, fertile people are now entering the reproductive ages and creating a population structure that will tend to counteract the trend of increased acceptance of family planning. In other words, while the number of children born to each 1,000 women in the reproductive ages may continue to decline slowly, there will be more women within these age groups to have the children.

The Chinese seldom report the levels of the crude death rate, even for local areas. The relatively few reported figures are either for urban localities or, as in the case of the birth rate, for model rural communities. Neither are typical of the country at large. Over the years, impressive progress has been achieved in preventive medicine, but for the overwhelming proportion of China's peasants, medical attention was both expensive (in terms of their ability or inclination to pay) and difficult to come by. With the post-Cultural Revolution emphasis on rural areas and the creation of cooperative medical care the situation improved, but problems remain. Although in theory the system works on a referral basis, the rural population still basically must rely on paramedics and on Chinese traditional drugs. Thus, the average Chinese peasant never gets beyond the still quite primitive facilities of the countryside and the diagnosis and care of the middle-level medical practitioners. This con-

dition must surely be reflected in a level of morbidity that is significantly higher than in the advanced countries.

Another factor usually neglected in any discussion of China's health care is that, according to the Chinese themselves, over 100 million peasants do not choose to pay the annual fees and join the cooperative health system. To this figure must be added the "under 5%" of the population that constitutes the "four bad elements" ("landlords, kulaks, counterrevolutionaries, and bad elements") who, from birth, are said to be excluded from nationally instituted health programs.[48] In all, there are therefore as many as 150 million people in China for whom medical attention is even less adequate and, when the need arises, more expensive.

There are, however, factors that work for a lower death rate. It is well known that a reasonably low level of mortality can be achieved by assuring people's hygiene and adequate nutrition. Despite some slippage in the national sanitation campaigns and the difficulty of maintaining personal hygiene under extremely crowded living conditions, Chinese authorities have managed to create a reasonably healthy environment for most of the country's people. Despite occasional local food shortages, the Chinese people are adequately fed. Also, China has a young population — an important factor that would depress the crude death rate.

Translating all the relevant factors into figures for China's crude birth and death rates is a very subjective exercise, which in no way reduces the convictions of those who attempt such estimates. Accepting the general presumptions that by the end of the 1950s China's birth rate was still about 40/1,000 and that by the end of the 1960s it was in the vicinity of 35/1,000 and considering both the intensity of the campaign to reduce fertility and the countervailing persistence of the many traditional forces against such a change, I believe the crude birth rate in China in mid-1977 was in the 22-25/1,000 range. The crude death rate, I would estimate, was at about 9 or 10/1,000. Consequently, the range of China's natural increase is from 1.2% to 1.6%. The mid-point, or 1.4%, appeals to me most (see appendix for population estimates).

There is no reason to doubt China's commitment to reducing population growth, and the persistent pressure on the peasants must result in a continued slow decline of the crude birth rate. I would not be surprised if, by the middle of the 1980s, China's crude birth rate would drop to perhaps 15/1,000, a truly fantastic achievement for a country with China's population and level of development. China's death rate may also drop a couple of points during the next few years, but with a reduced birth rate and a population that will be growing older, it is not likely to go below 7 or 8/1,000.

I am convinced that the Chinese have neither the vital rates for the country nor the data necessary to judge the weight of all the various factors that go into estimating crude birth and death rates. Furthermore, I do not believe that this situation will improve for a long time to come. Thus, while we can disagree with the various estimates and even sneer at some of the figures proposed by others, in the final analysis there is no way to prove anyone right or wrong. In a way, it is an enviable position for a crystal ball gazer to be in.

APPENDIX

Revising estimates of China's population on the basis of new evidence and changing intuitions is inherent in the profession. The figures in the table below represent a minor revision of my earlier estimates that appeared in "China's Population: Can the Contradictions be Resolved?" *China: A Reassessment of the Economy*, Joint Economic Committee of the U.S. Congress (Washington: U.S. Government Printing Office, July 1975), p. 77. Specifically, the revision consists of an across-the-board one point decrease in the crude death rate, resulting in a 20-million increase in the 1977 population over the 1975 estimate.

POPULATION ESTIMATES AND VITAL RATES OF CHINA: 1954-1980

(Population figures in millions as of Jan. 1; vital rates per 1,000 population)

Year	*Birth Rate*	*Death Rate*	*Natural Increase*	*Population*
1954	43	21	22	588
1955	42	20	22	601
1956	41	19	22	614
1957	40	18	22	627
1958	39	18	21	642
1959	38	19	19	655
1960	38	20	18	667
1961	38	20	18	679
1962	38	19	19	692
1963	37	18	19	705
1964	36	17	19	718
1965	35	16	19	732
1966	34	16	18	746
1967	34	16	18	759
1968	34	16	18	773
1969	33	15	18	787
1970	32	15	17	801
1971	31	14	17	815
1972	30	14	16	828
1973	29	13	16	841
1974	28	12	16	855
1975	27	11	16	869
1976	26	11	15	883
1977	25	10	15	896
1978	24	10	14	909
1979	23	9	14	922
1980	22	9	13	934

NOTES

1. T. T. Ravenholt, "The Chinese Puzzle" (letter), *People*, Vol. 3, No. 4 (1976), and elsewhere.

2. As quoted by Jay Mathews in "China Fitfully Rooting Out Opposition," *The Washington Post* (Mar. 16, 1977).

3. Specifically, Peking reported a birth rate of 37, a death rate of 17, and a natural increase of 20 per 1,000. Although the sample from which the birth and death rates were derived was in no way representative of the country at large (each was probably at least five points higher), the 2% growth rate is not unreasonable for that period.

4. There have been rumors that the Chinese attempted population investigations in 1964 and 1974 and that the subsequently published provincial figures refer to these two specific years. Even if these efforts were undertaken (and the evidence is not necessarily convincing), it is doubtful that a secret population update could produce anything better than still more approximations.

5. See, for example, Leo A. Orleans, "China's Population: Can the Contradictions Be Resolved?" *Studies in Family Planning*, (Feb. 1976).

6. For Mao Tse-tung's comments on population, see, for example, his interviews with Edgar Snow in: *New Republic* (Feb. 27, 1965), p. 20, and *Life* (Apr. 30, 1971), p. 47.

7. It seems safe to accept the proposition that the vital rates in the cities are quite low, because the urban areas have the best medical facilities and the most competent personnel. Moreover, the planning of births has been basically accepted by the urban population. The forced migration of at least 12 million urban youths to the countryside would also tend to depress the urban birth rate. Both Peking and Shanghai, for example, report rates of natural increase of "less than 0.6%". See New China News Agency (NCNA), (Feb. 27, 1977). Whether these and similar figures for urban China make sense or not — and some of the vital rates even for the cities appear to be below reasonable expectations — it is the rural population that has an overwhelming effect on the nation's vital rates.

8. Mary Sheridan, "The Emulation of Heroes," *China Quarterly*, No. 33 (Jan.-Mar. 1968), p. 47.

9. See, for example, Pi-chao Chen, "China's Population Program at the Grass-roots Level," *Studies in Family Planning* (Aug. 1973), pp. 219-227; Carl Djerassi, "Some Observations on Current Fertility Control in China," *China Quarterly*, No. 57 (Jan.-Mar. 1974) pp. 40-62; Leo A. Orleans, "China's Experience in Population Control: the Elusive Model," *World Development* (Jul.-Aug. 1975), pp. 497-525. Other sources may be found in Leo A. Orleans, "A Selective Bibliography of the Demography of China," *Population Index* (Oct. 1976), pp. 653-693.

10. See, for example, the section on contraceptive technology in Leo A. Orleans, "The Role of Science and Technology in China's Population/Food Balance," Committee on Science and Technology, U.S. House of Representatives (May 1977).

11. Kwangtung Provincial Service (Dec. 12, 1976). (Almost all the provincial radio and NCNA reports are from issues of *FBIS Daily Report: People's Republic of China.)*

12. Krishna Prakash Gupta, "Emancipation and Enslavement of Women in China: Confucian and Communist Variations," *China Report* (Sept.-Dec. 1975), p. 71.

13. *Chung-kuo Ch'ing-nien (China Youth)*, No. 1 (Jan. 1, 1965) translated in Joint Publications Research Service (JPRS), No. 29,529 (Apr. 12, 1965).

14. *Ibid.*, No. 4 (Feb. 16, 1966) in *Survey of China Mainland Magazine* (SCMM), (American Consulate General, Hong Kong), No. 519.

15. The same conditions make it reasonable to accept an official position that premarital sex is an unusual occurrence in present-day China. Yet the young people of China are not necessarily as puritan in mind as they seem to be in action. It is doubtful if they believe that the only way "to make one's fiery youth keep sparkling" is to practice late romance and late marriage. The situation is probably not helped by the very limited availability of entertainment in rural China. China's youth, therefore, are likely to be under considerable physiological and mental strain. It would require, then, the most persuasive arguments and pressures on the part of the local cadres (who themselves may find it difficult to set the example) to convince young people to postpone marriage and the potential happiness of a conjugal relationship as well as offspring for any length of time.

16. Hupei Provincial Service (Dec. 11, 1973).

17. Martin Whyte, "Birth, Marriage and Death: Life Cycle Ceremonies in Contemporary Kwangtung Villages," a paper presented at the 4th Annual Sino-American Conference on Mainland China, Airlie House, Virginia, Dec. 12-15, 1974.

18. *People's Daily* (Jan. 12, 1973) in *Survey of China Mainland Press* (SCMP), (American Consulate General, Hong Kong), No. 5300.

19. *People's Daily* (Aug. 22, 1970).

20. NCNA (Feb. 6, 1975).

21. Jay Mathews, "Chinese Said to Determine Sex of Fetus, Abort Females," *The Washington Post* (Mar. 1, 1977), p. 11.

22. Kwangtung Provincial Service (Dec. 12, 1976). The same report, incidentally, claims that Chiang Ch'ing believed that it was unnecessary for women "to plunge actively into socialist revolution and construction" because as a "breeder of productive forces" a woman is already a basic productive force.

23. "A Study of Physical Education" (1917), as quoted in Michel Oksenberg, "Chinese Politics and the Public Health Issues," in John Z. Bowers and Elizabeth F. Purcell, *Medicine and Society in China* (New York: Josiah Macy, Jr. Foundation, 1974), p. 134.

24. Leo A. Orleans, "Medical Education and Manpower in Communist China," in C. T. Hu, ed., *Aspects of Chinese Education* (New York: Teachers College Press, Columbia University, 1969).

25. See, for example, *Tung-fang Hung (The East is Red)*, Chungshan Medical Institute, Red Guard Congress, June 30, 1968, in JPRS, No. 46,645 (Oct. 11, 1968); NCNA (Jan. 11, 1969); and *People's Daily* (Mar. 3, 1971).

26. Stuart Schram, ed., *Chairman Mao Talks to the People* (New York: Pantheon Books, 1974), p. 232.

27. *Current Scene*, Vol. VII, No. 12 (June 15, 1969). This issue entitled "The Mao-Liu Controversy Over Rural Public Health," contains an excellent discussion of the public health issues during the 1960s.

28. *China Reconstructs*, No. 11 (Nov. 1973).

29. NCNA (Apr. 13, 1977).

30. One unusual report admits that over a period of some three months, more than 1,700 doctors and nurses from Tientsin have made their rounds of villages "on the city's outskirts." See NCNA (Dec. 21, 1976).

31. Mark Selden, "The Chinese Health System," *Health PAC Bulletin* (Dec. 1973), as quoted by Teh-wei Hu, *An Economic Analysis of Cooperative Medical Services in the People's Republic of China* (Washington: John E. Fogarty International Center, 1975), DHEW pub., No. (NIH) 75-672, p. 21.

32. NCNA (Apr. 8, 1977).

33. *People's Daily* (July 25, 1970), in *FBIS* (Aug. 13, 1970).

34. Although curricula vary from school to school, the three-year schedule at the Shanghai Second Medical School is presented in Tsung O. Cheng, Lloyd Axelrod, and Alexander Leaf, "Medical Education and Practice in the People's Republic of China," *Annals of Internal Medicine*, Vol. 83, No. 5 (Nov. 1975), pp. 720-721.

35. The figures for higher and middle-level personnel are rough approximations based on educational data published before the Cultural Revolution. For a discussion of some of the assumptions that went into these estimates, see Leo A. Orleans, *Health Policies and Services in China, 1974*, Subcommittee on Health, U.S. Senate (Mar. 1974), pp. 24-25.

36. NCNA (Apr. 8, 1977). The survivors of the 500,000 traditional medical practitioners and herbalists of varying degrees of competence who practiced in China in the early 1950s have either been retrained and are included in the present health system or have gone on to other occupations.

37. Frederick W. Crook, "The Commune System in the People's Republic of China, 1963-74," *China: A Reassessment of the Economy*, Joint Economic Committee of the U.S. Congress, Washington, 1975, p. 395.

38. NCNA (Apr. 4, 1977).

39. See, for example, NCNA (June 26, 1976).

40. See, for example, *Peking Review* (June 10, 1977).

41. *China Reconstructs*, No. 11 (Nov. 1973).

42. NCNA (Mar. 7, 1977).

43. *Kuangming Jih-pao* (Mar. 22, 1972) in JPRS, No. 56, 327 (June 21, 1972).

44. See, for example, NCNA (Apr. 4, 1977).

45. See, for example, Jay Mathews, "Epidemics Follow Peking's Political Turmoil," *The Washington Post* (May 17, 1977), p. 1.

46. Yunnan Provincial Service (Mar. 29, 1977).

47. NCNA (May 4, 1977).

48. *China News Analysis* (Hong Kong), No. 1020 (Nov. 14, 1975).

B. Contraceptive Technology in China

In China, as in so many other third world countries, the second stage of the demographic transition occurred over a period of less than a decade. The various measures introduced by the new regime after 1949—sanitation campaigns, mass inoculations, extermination of disease-carrying pests, et cetera—rapidly improved health conditions and just as quickly dropped the country's mortality, although perhaps not so quickly as it would have in a small country with massive western assistance. This reduced death rate, combined with a continuing high birth rate, resulted in a natural increase of over 2 percent in the mid-1950's and brought about (after a few years of debate) China's first birth control campaign. The campaign peaked in 1957 and gradually dissipated with the Great Leap Forward in 1958. For some 3 years all discussion of family planning disappeared from China's press and radio, until another campaign was mounted in early 1962, only to be swallowed up by the Cultural Revolution in 1966. After another 3

years of silence, the Chinese gradually initiated yet another major campaign for planned births—a campaign that seems to be still gaining in momentum and that is not as likely to be affected by political or leadership changes.[9]

Although in China it is impossible to excise politics from any activity or goal, the focus of this paper is not politics and policies relevant to family planning—about which information is relatively plentiful, but on research and production of contraceptives—about which information ranges from minimal to nonexistent. This unevenness in data becomes evident in the following review of developments in contraceptive technology in the People's Republic of China.

1. THE FIRST DECADE

In the mid-1950's, when China launched her first birth control campaign, the obstacles were literally insurmountable. The rural, largely illiterate population steeped in Confucian tradition that glorifies the big family (with many sons) ideal was not yet prepared even to listen to birth control propaganda—much less practice it; the urban population of some 80 to 90 million was only slightly more prepared to accept family planning practices. But although the number of potential acceptors was relatively small, so was the supply of domestic and imported contraceptives available in China. A few excerpts from "methods to practice contraception," published in a 1955 issue of *China Youth*.[10] are revealing as to the overall level of contraceptive technology and practices at that time:

> Diaphragm. Very effective * * * a doctor must be consulted to find the right size * * * rim of diaphragm must be covered with about a teasponfull of contraceptive ointment * * * should not be removed for 8 hours after intercourse.
>
> Condom. Before using, the cap should first be blown up to ascertain that there is no leakage * * * after use it should be washed, rubbed dry and next day sprinkled with talcum powder and placed back into the box for future use.
>
> Contraceptive drug. Cone-shaped substance about the size of a peanut * * * should be inserted deep into the vagina * * * will take 7 or 8 minutes to dissolve * * * will kill spermatozoa.
>
> Sponge foam powder. Cut piece of sponge (the artificial sponge used in banks for counting banking notes) into a size slightly larger than that of a silver coin, and soak it in water * * * sprinkle the foam powder on both sides and insert deep in the vagina * * * foam will prevent spermatozoa from entering uterus and at the same time kill the spermatozoa * * * to insure the easy removal of the sponge, a thread may be tied to it with one end left outside the vagina.
>
> Contraceptive ointment top should be removed from tube which should be connected to a specially made long tube * * * about one and a half teaspoonsful of ointment should

[9] For a more detailed discussion of China's birth control campaigns, see Leo A. Orleans, *Every Fifth Child: The Population of China* (Stanford: Stanford University Press, 1972), pp. 88–50.

[10] *Chung-kuo Ch'ing-nien (China Youth)*. No. 4, Feb. 16, 1955.

> be squeezed out from the tube * * * should best be used in conjunction with the diaphragm.
>
> "Manipulation of the ovum emitting period." The best way to have the body temperature tested is with a clinical thermometer every morning * * * During the 7 or 8 days inside the ovum emitting period (including 4 days before and 3 days after the ovary emits the ovum), sexual intercourse should be avoided.

The article concludes by informing the reader that all the above-mentioned "contraceptive instruments and drugs" could be bought from the China Medical Co.—at prices, incidentally, that were quite prohibitive even for the average urban worker.

As the first birth control campaign gained momentum, the question of cost and availability of contraceptives naturally became an important issue. In a 1957 speech to the Chinese People's Political Consultative Conference (CPPCC), the superintendent of Peking's People's Hospital complained that "the contraceptive diaphragm is too expensive, costs more than 1 yuan each and is beyond the means of most people." [11] He placed the blame for the high cost of contraceptives on "the profiteering of the China Medical Co." Less than 2 weeks later, in response to this and other criticisms, a New China News Agency dispatch announced that "beginning April 1 (1957) the prices of contraceptives made in China will be reduced approximately 30 to 60 percent, and the Chinese pharmaceutical company is planning to market 6 times the quantities supplied last year." [12] The prices were reduced as promised, but it is doubtful if China's pharmaceutical enterprises were able to achieve a sixfold increase in contraceptive production, for in less than 1 year Peking reversed its policy with respect to fertility control and launched the Great Leap Forward which denied the need to reduce population growth.

There does not appear to be any information about bonafide contraceptive research in the 1950's in China and probably very little, if any, took place. We cannot leave this period, however, without at least a brief discussion of the very active "contraceptive research" that was conducted by the practitioners of traditional Chinese medicine.[13]

Chinese recipes that were intended as contraceptives or as abortifacients go back thousands of years. In his *Medical History of Contraception*, Norman Himes quotes from the most ancient medical work in the Chinese language that was put together almost 3,000 years before the birth of Christ. "Shui yin tastes bitter, is of cold nature, and contains poison. It is a specific for ulcers, white itching sores on the scalp, will kill parasitical worms in the skin and flesh, cause abortion, and cure fevers * * * ." Other early prescriptions for oral contraceptives include the use of paper on which silkworm eggs have been hatched, a concoction referred to as "four ingredients broth," a combination of oil and quicksilver fried for a whole day, and so forth.

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[11] *Jen-min Jih-pao (People's Daily)*, March 17, 1957, hereafter referred to as *JMJP*; translated in *Current Background*, No. 445, April 5, 1957, hereafter referred to as *CB*.
[12] New China News Agency, March 31, 1957, hereafter referred to as NCNA.
[13] To gain some appreciation for the important role played by Chinese traditional medicine and its numerous and diverse practitioners in the health policies of China, see Ralph C. Croizier, *Traditional Medicine in Modern China* (Cambridge: Harvard University Press, 1968); also, Leo A. Orleans, "Health Policies and Services in China, 1974," report to the Subcommittee on Health, U.S. Senate, March 1974.

Many of the prescriptions claim that they "will forever prevent one from becoming pregnant." [14]

To the Western mind, the curious aspect of these recipes is not that they were prescribed several thousands of years ago, but that as recently as the 1950's—and even since then—practitioners of Chinese traditional medicine were actively experimenting with and prescribing contraceptive formulas that seem no less fantastic. In addition to the scores of oral contraceptive recipes that were published in the mid-1950's, considerable attention was given to reports that infertility could be achieved through the use of acupuncture. But some of the contradictions that surfaced as a result of China's policy to rehabilitate traditional medicine are best illustrated by the tadpole controversy. Because of the nature of the method and because of its endorsement by Shao Li-tzu at the First National People's Congress in June 1956, the designation of tadpoles as an inexpensive, safe and 95 percent effective method of contraception, received worldwide publicity. To achieve total sterility for 5 years, women were instructed to swallow 14 live tadpoles on the third day after menstruation and follow it up with 10 more tadpoles on the fourth day.[15] Since this was a period when the regime mounted an all-out campaign to exalt the value of traditional medicine and condemn Western medicine as being bourgeois, few people dared to criticize the contraceptive potions prescribed by the herbalists until the "hundred flowers" campaign in the spring of 1957. One of those who spoke out during this "blooming and contending" period, when the party encouraged free political discussion and criticism, was Chung Hui-nan, the Superintendent of Peking's People's Hospital. In addressing the Second National Committee of the CPPCC in March 1957 he said:

> As regards the contraceptive methods which are without scientific foundation and those which are still immature like the use of tadpoles and acupuncture, they remain to be academic problems which have yet to be studied and examined, and should not be publicized with exaggeration at too early a date * * * ." [16]

In 1958, herbal concoctions and specifically tadpoles were officially exorcised from the society but obviously not forgotten, as the following postscript suggests. As late as 1965 a journal of traditional medicine carried an article disputing the rejection of "birth control by eating tadpoles" and insisting that further research is needed before judging the validity of the method.[17] Further clues also suggest that testing herbs for contraceptive use was not completely terminated after 1958. When periodic emphasis on traditional medicine coincided with the periodic campaigns to reduce fertility, herbs, roots, bones and a variety of other vegetable, mineral and animal ingredients were boiled, ground, cooked and mixed, hopefully to produce a compound that would cause temporary or permanent infertility.

A good summary of the whole decade of the 1950's with regard to

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[14] Himes, op. cit., pp. 108–112.
[15] NCNA, June 26, 1956; *CB*, No. 405, July 26, 1956.
[16] *JMJP*, March 17, 1957; *CB*, April 5, 1957.
[17] *Ha-erh-pin Chung-i* (*Harbin Journal of Chinese Traditional Medicine*), Vol. 8, Nos. 4–5, 1965; translated in Joint Publications Research Service, March 17, 1969, hereafter referred to as JPRS.

contraceptives was supplied by Shao Li-tzu, once again during the period when it was permissible to "bloom and contend":

> * * * Contraceptive medicines are urgently needed by the masses, but we are unable to have the general need met in time. Such medicines have to be manufactured on a large scale and part of them have to be imported. The masses are also in need of contraceptive medicines which are more simple and effective but less expensive and can be taken orally. We are as yet unable to supply such medicines, and active research in this field has yet to be carried out by the medical experts.[18]

The 58-member birth control research committee, established in 1957 ostensibly to coordinate experience and research in contraception,[19] was primarily responsible for "spreading scientific knowledge on birth control" rather than coordinating the virtually nonexistent "research on contraception." Besides, it had little time to do anything, since it became defunct in 1958—a casualty of the Great Leap. So there seems to be no reason to dispute Shao's statement. Despite the rather intensive birth control propaganda in the middle 1950's, the supply of contraceptives never met the limited demand and virtually no significant research was carried on in contraceptive technology during those years.

2. DEVELOPMENTS SINCE 1960

The second birth control campaign started in 1962 with a barrage of articles urging the population to delay marriage and lasted until the initiation of the cultural revolution in 1966. One of the primary distinctions between it and the earlier campaign was the regime's admission that adequate supplies of contraceptives and progress in contraceptive technology were indispensable if China were to realize the desired reduction in the crude birth rate. Criticisms were voiced about the need to overcome the "shortage and incompleteness of contraceptive medicines and articles" and to improve the quality of the contraceptives that were marketed. While the popular press in 1962 and 1963 continued to encourage the masses to place primary reliance on the condom, the diaphragm, the "safety period" and the spermicides, medical journals began to publish numerous articles that discussed contraceptive research that was being carried on. Based strictly on the volume of professional articles that appeared between 1962 and 1966, one would conclude that this research focused almost entirely on intrauterine devices, abortion and sterilization, with only limited work on oral contraceptives. References to traditional Chinese formulas almost completely disappeared during this period. Let us consider the developments in each of these fields.

a. Abortion

While there is no reason to doubt China's official contention that the country does not rely on abortion to reduce population growth, abortions are readily available throughout the country on request, are free of charge and are undoubtedly increasing in number. Easy accessibility to abortion has not always been the case, however, and the pres-

[18] *JMJP*, March 20, 1957; *CB*, No. 445, April 5, 1957.
[19] NCNA, March 31, 1957.

ent official position evolved following years of heated public and private debates.

During the 1950's, when the Chinese press discussed the pros and cons of population growth and argued about the need for fertility controls, the subject of abortion was frequently included. There is no doubt that during those years the overwhelming proportion of the official opinion—including that of the medical profession—was opposed to abortion-on-request. There seemed to be a broad consensus that abortion should never become a means for family planning, but should only be resorted to in cases where the health of the mother or the child was in danger. At the height of the first birth control campaign, however, the Minister of Health suddenly announced a relaxation in the criteria to be used in obtaining abortions. The reaction was strong indeed. One of the most vigorous objections was raised by the influential Chinese Medical Association. In a letter addressed to the Ministry of Public Health, the specialists listed seven reasons why abortion was inappropriate from the medical point of view and expressed the hope that the Ministry would reconsider its directive on artificial expulsion. It further suggested that abortion be separated from the general subject of birth control, that requests for abortion be channeled through the Association for approval and that the Ministry of Health clarify its stand.[20] There was some backtracking by the Ministry to pacify the doctors, but the basic decision stood and since 1957, if both the husband and wife agree, if the woman is not more than 10 weeks pregnant, and if the couple live in one of the larger urban areas, an abortion can be obtained with minimum effort.

During the 1960's abortion was no longer considered to be a "dangerous and harmful procedure." It is not clear whether there was a genuine change of heart on the part of some of the more important opponents to abortion or simply a reaction to a more forceful stand on this issue by Peking. The appearance of a number of articles on abortion in Chinese medical journals and especially in the *Chinese Journal of Gynecology and Obstetrics* clearly indicated a change in approach. By no means did abortion become an accepted method for controlling fertility, but the incidence of abortion certainly increased—to a large extent because of the development of the much publicized "fire-suction bottle" or, more precisely, the vacuum aspirator. Described as "a treasure bequeathed to us by our traditional medicine," the fire- suction bottle was especially touted for its suitability in rural areas where it could be used without electricity and operated by specially trained paramedics. It was said to be completely reliable, inexpensive, almost painless and causing minimal loss of blood.[21]

There are two basic reasons to assume that the number of abortions performed in China has steadily increased in the 1970's: the procedure is simple and free and there is considerable pressure to abort an unscheduled baby, especially if the mother already has two or three children. The vacuum aspirator is in wide use throughout China. According to Faundes and Luukkainen, physicians who visited China as members of the International Committee for Contraception Research of the Population Council, early abortions are done in the basic health

[20] NCNA, May 29, 1957; translated in *Survey of China Mainland Press*, No. 1546, June 7, 1957, hereafter referred to as *SCMP*.
[21] *Hu-li Tsa-chih (Journal of Nursing)*, No. 2, March 1966.

units, usually by specially trained nurses, barefoot doctors or midwives, and almost 100 percent of these abortions are done by vacuum aspiration.[22] But although the present techniques seem to satisfy China's needs, research is going on in the hope of finding new abortifacients among the herbs used in traditional medicine and developing an injection that will induce abortion.

b. Sterilization

The reaction to the official sanction for sterilization, announced in the mid-1950's, was not nearly so vocal as the reactions against abortion. It presented no ethical or moral problem for the Chinese, and the demand for sterilization was so insignificant that discussions relating to it seemed almost hypothetical. No one stood in line to get sterilized, and sterilizations which were performed were limited mainly to women in urban hospitals.

As in the case of abortions, there was a definite increase in the number of sterilizations performed during the 1960's, but it probably was not significant enough to become an important factor in reducing Chinese fertility. Chinese medical journals published dozens of articles discussing various aspects of vasectomies and tubal ligations—most of them communicating specific techniques, problems and experiences that would be helpful to local medical personnel. At the same time, the mass media continued to encourage sterilization for couples with three, four or more children, making every effort to help both men and women overcome the universal fear of surgery and to convince the average male that vasectomy is not castration and that he will not experience any loss of sexuality.

There is little doubt that during the past half-dozen years there has been an even further increase in the number of sterilizations—primarily tubal ligations on women over 35 years of age—performed annually in China but, as usual, national statistics are nonexistent. Some local figures are occasionally made available to visitors, but areas open to foreigners are in no way typical of China. Faundes and Luukkainen, for example, reported that "tubal sterilization has been used so widely that in some places its number reaches the level of IUD insertions."[23] Considering the widespread use of IUD's, the above statement is not likely to apply to China as a whole.

Occasional reports suggest that some research relating to sterilization is continuing in China. Of special interest are a number of articles that appeared in medical journals in 1975 discussing new one-man techiques of fallopian tube ligation under acupuncture anesthesia. A *Barefoot Doctor Journal*, for example, reports that either ear acupuncture, nose acupuncture, or body acupuncture has been found to be feasible anesthesia for ligation of fallopian tubes by one "surgeon" without an assistant.[24] This is an example of innovation in the best Chinese tradition. The innovators, in this case with relatively limited medical education, are attempting to adapt existing knowledge to meet specific and practical requirements. Here, a barefoot doctor with relatively limited medical training, traveling alone in the more

[22] Anibal Faundes and Tapani Luukkainen, "Health and Family Planning in the Chinese People's Republic," *Studies in Family Planning*, Vol. 3, No. 7, Supplement, July 1972, p. 173.
[23] Ibid., p. 175.
[24] *Chih-chiao I-sheng Tsa-shih (Barefoot Doctor Journal)*, No. 1, January 30, 1975.

remote rural areas, becomes not only a family doctor (with a portable office), but also an anesthesiologist, a surgeon and a sex therapist. Too many hats for one person to wear? Perhaps—but it seems to work.

c. Intrauterine Devices (IUD's)

In the 1960's China seemed to be looking at the IUD as the most promising contraceptive device for its needs. The device was said to be simple, effective, suitable to the requirements of rural women and therefore "most welcome by these women." Departments of gynecology and obstetrics all over the country experimented with IUD's, and from 1964 through mid-1966 there were at least two dozen articles in medical journals reporting on the work being done. The titles of the articles ranged from "Observations on Short-Range Efficiency of Birth Control Loop Utilization in 1,091 Rural Women" to "Method of Using a Fork-like Rubber Devise to Insert the Stainless Steel Contraceptive Ring" to more personal comments such as "My Experience in Installing the Intrauterine Contraceptive Device."

The emphasis that was placed on developing a cheap and effective IUD and the widespread use of the device were reported on by many visitors to China. After a 1965 visit to China, Dr. Tamoyoshi Katagiri, regional secretary of the International Planned Parenthood Federation, concluded that "the IUD is the most popular contraceptive in the country, surpassing even the condom."[25] Although this statement may well be an overgeneralization of what he was shown on the trip, Han Suyin, physician, novelist and frequent China visitor and booster, also reported after a 1969 visit that "the intrauterine device is probably still the most commonly used" method of contraception.[26] As late as 1972, Faundes and Luukkainen reported that the intrauterine device was "the first" contraceptive method introduced in China on a large scale. They also list the types of IUD's that were in use in China in the spring of 1972:

> We found seven types of IUD's currently used: a Y-shaped device made of silver; a ring of coiled stainless steel made in four different diameters ranging from approximately 12 to 20-millimeters; a ring made of coiled stainless steel around a flexible polyethylene rim with or without centerpiece: the all-plastic version of this device (Ota ring): a modified Margulies spiral; an original device designed in Canton called the "Flower of Canton"; and the Copper T (TCu 200).[27]

Simply from the information that these two scientists were able to glean about expulsion rates, pregnancy rates and other details on the use of IUD's, it would appear that at least in the early 1970's considerable research on these devices was still being carried on by Chinese doctors.

All this raises a number of interesting questions. Does China still believe that primary reliance in reducing fertility should be placed on IUD's? How valid is the statement that "the use of IUD's appears

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[25] Tamoyoshi Katagiri, "The Second Report on Family Planning in China," July 1965. (Unpublished)
[26] Han Suyin, "Family Planning in China," *Japan Quarterly*, October–December 1970.
[27] Faundes and Luukkainen, op. cit., p. 173.

to be dropping dramatically in favor of oral contraceptives"?[28] If it is correct, then was there a conscious shift in emphasis on the part of the authorities—from the IUD's to oral contraceptives—or simply a "market reaction" to advances made in contraceptive steroids and their current widespread availability? Or, as in so many other ways, will China "walk on several legs" and encourage the people to use whatever suits them best?

d. Chemical Contraceptives

As of this writing, the person who returned from China with the greatest amount of information about China's oral contraceptives is Dr. Carl Djerassi, a chemist who played an important role in the development of the steroid pill in the United States, and many of the details included in this section are based on the data he published upon his return.[29] More recent information will become available in the spring of 1977, with the publication of a report by the Steroid Chemistry and Biochemistry Delegation, which went to China in October 1976 under the auspices of the Committee on Scholarly Communications with the People's Republic of China—National Academy of Sciences. Preliminary indications suggest, however, that the information picked up by this latest delegation will supplement but not subvert the discussion that follows.

According to Djerassi, China has several Western-trained highly competent steroid chemists, under whose leadership serious chemical work aimed at the production of all medicinally important steroids began in 1958 at the Institute of Organic Chemistry in Shanghai (Chinese Academy of Sciences) and at the Institute of Materia Medica in Peking (Chinese Academy of Medicinal Sciences). This Great Leap year and a few years immediately following were not ideal for any serious and intensive scientific research—especially in the field of fertility control—so it is not surprising that advanced levels of research on oral contraceptives were not reached until 1964, well after the initiation of the second birth control campaign. Testing of the pills apparently was started in Shanghai in the 1965-66 time period, and rapid promotion of the low-dose pill was not initiated until 1969.

In his population council publication Djerassi provides all the clinical data relating to China's steroid contraceptives, as well as the regimens and instructions that are included in the package inserts. Suffice it to say here that, basically, the Chinese rely on two types of pills, pill No. 1 and pill No. 2. What distinguishes these pills from those manufactured in the West is that the Chinese developed the first low-dose oral contraceptive to be produced anywhere in the world. Despite some problems with side effects and primitive quality control, Djerassi believes that the quality of the pills falls within the limits used in the United States. He estimates that perhaps as many as 16 million women in China were using the pill in 1973. Recognizing the problems the Chinese had to overcome, Djerassi considers that this was a "remarkable achievement" and that "taking 1963 as a reference point, the Chinese accomplishments during the 10-year period are

[28] Carl Djerassi, "Fertility Limitation Through Contraceptive Steroids in the People's Republic of China," *Studies in Family Planning*, vol. 5, No. 1, January 1974, p. 13.
[29] Carl Djerassi, "Some Observations on Current Fertility Control in China," *China Quarterly*, January–March 1974, pp. 40–62.

unsurpassed in terms of magnitude, intensity, and total self-sufficiency." [30]

There are, however, a few curious aspects of China's development of steroid pills during the 1960's. Throughout that decade, when Chinese steroid chemists were apparently doing most of their clinical research on contraceptive pills, medical journals—while printing numerous articles on IUD's abortions, and sterilizations—published at most perhaps half-a-dozen articles relating to the work that was done on pills. In 1965, when Katagiri asked whether the oral pill was being used in China, a physician who was also vice chairman of the Peking Maternity Hospital replied that it had not been used yet but that it was being studied.[31] This would suggest that either the work was being kept secret or that all the testing was conducted in specific communities, probably in the vicinity of the institutes conducting the research, and that even administrators of maternity hospitals were not fully aware of the developments. Although Katagiri apparently did not see any pills on his visit to Peking, Shanghai, and Canton, during the same year American newspapers reported that birth control pills were prominently displayed, in these specific cities.[32] Since in 1965 no one knew that the Chinese had developed an oral contraceptive, some observers speculated—erroneously, I'm sure—that the displayed pills were of American or European origin. Two years later, but still prior to the widespread distribution of pills in China, a Reuters report from Kuala Lumpur states that "Malaysian women were today warned not to buy birth control pills from China" because they could be harmful.[33] This raises the obvious question that will be left dangling: Were the Chinese testing their pills in other countries before approving them for mass use in their own country?

Undoubtedly the most innovative development in chemical contraception is China's manufacture of "Sheet Type Oral Birth Control Pills," variously referred to by vistors as "stamp contraceptives," "perforated blotting paper," "edible sheets of paper with perforations like miniature postage stamps," and so forth. Once again Djerassi, who was able to observe the manufacture of the "paper formulations," returned with some of the most detailed information. In short, a sheet of water-soluble paper is impregnated with an appropriate amount of progesterone and estrogen and is perforated into 22 stamp-like squares which are to be taken daily by dissolving them in the mouth. Considering the obvious advantages of this method of dispensing oral contraceptives (cost, storage, transport, etc.), it would seem reasonable for the Chinese to give top priority to "paper formulations." This is not the case, however; they are rarely mentioned in Chinese publications. The pills, on the other hand, are mass produced and widely available. Probably, difficulties have been encountered: perhaps the paper sheets are not as effective as the pills or have unfortunate side effects. In any event, the enthusiastic conclusion of one visitor that "the

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[30] Djerassi, op. cit., p. 25.
[31] Katagiri, op. cit.
[32] For example, *The Washington Post*, Jan. 1, 1965.
[33] *China Mail* (Hong Kong), Nov. 23, 1967. China continues to export oral contraceptives, but although the quantities are not known, the quality is apparently greatly improved. For example, in a long article describing the composition and use of pill No. 1 and pill No. 2, which are imported by Vietnam, a Hanoi doctor concluded that by taking the pills "good results can be achieved in planned child-birth without any adverse physiological effects." (Mau Don, "Experiences in the Use of Chinese Birth Control Medicines," *Suo Khoe* (Hanoi), No. 123, March 1973: JPRS, No. 58,938, May 7, 1973).

rural populace should soon enjoy access to 'paper pills'" [34] was apparently premature.

Chinese publications also seem to be silent about the once-a-month pill and injections, and yet it is widely reported by visitors that both types of contraceptives are being tested and used in various parts of the country. Faundes and Luukkainen report that in 1972 they saw the once-a-month steroid contraceptive injections being tested and used in a number of clinics, each following different plans of treatment. They also reported a once-a-month pill under trial in Wuhan. Both types of contraceptives were reported to be effective in preventing pregnancies but to have some undesirable side effects. When asked about the details, such as the number of patients involved and the duration of the experiments, the Chinese hedged, describing the trials as preliminary, too early for results or analyses. Work on once-a-month and once-a-week pills was also reported by Djerassi. At the Institute of Materia Medica, Victor and Ruth Sidel were told that the Chinese had already produced a once-a-month pill and were working on once-in-three-months and once-a-year pills.[35] Pi-chao Chen mentions that 10 percent of the married women within the reproductive ages in a Peking production brigade were using an injectable contraceptive.[36] Katagiri reports that research was being conducted on a contraceptive injection for males, but that a safe and effective formulation had not yet been developed.[37] After a 1975 visit, Professor William Parish brought back a "Family Planning Investigation Form" that he had picked up at one of the communes. Under the heading "Presently Used Planned Birth Method," the form carries an entry for "shot."[38] One report even stated that China is widely using injections which are effective for 3 months and can be administered to either husband or wife![39] Curiously, none of these first-hand observations seems to be verified in any Chinese writings on family planning. The one exception is a "visiting family" or "vacation" pill, which is to be used when a husband or wife (separated because of work assignments) comes home for a visit. When taken immediately after coitus, the pill is judged to be convenient, safe and highly effective. The "vacation" pill, which consists of a new contraceptive drug called Anordrin, was not only mentioned by some visitors, but was written up in some detail by a group of scientists from the Shanghai Institute of Materia Medica.[40]

3. COMMENTS AND PROSPECTS

Unquestionably, China's scientists take seriously the constant exhortation at regional family planning conferences that "medical as well as scientific research departments must continue to search for ever

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[34] Norman Myers, "Of All Things People Are the Most Precious," *New Scientist*, Jan. 9, 1975, p. 57.

[35] Ruth Sidel, *Women and Child Care in China* (Baltimore: Penguin Books Inc., 1973), p. 58.

[36] Pi-chao Chen, "Lessons from the Chinese Experience: China's Planned Birth Program and Its Transferability," *Studies in Family Planning*, Vol. 6, No. 10, Oct. 1975, p. 332.

[37] Tamoyoshi Katagiri, "A Report on the Family Planning Program in the People's Republic of China," *Studies in Family Planning*, Vol. 4, No. 8, August 1973, p. 218.

[38] Personal communication from Professor William L. Parish, University of Chicago.

[39] As told to Peter and Mary New (University of Toronto) on their 1975 visit to China (unpublished).

[40] Ku Chih-ping, et. al., "Pharmacological Studies of a Contraceptive Drug Anordrin," *Scientia Sinica*, March–April 1975, pp. 262–270. The paper was submitted for publication in December 1973. An excellent and detailed discussion of the development of Anordrin is included in the as yet unpublished paper by Dr. W. Henry Mosley, a member of the 1976 Steroid Chemistry and Biochemistry Delegation to China.

safer, cheaper and more effective birth control medications."[41] They are, therefore, conducting significant work on contraceptive technology in research institutes and medical facilities. There is very little information, however, on which to judge how far along the Chinese are in this research and no national data at all on how widespread the use of long-term pills, injectables and other newly developed contraceptives might be. As a matter of fact, regarding general availability of the new chemical contraceptives, observations of local use are very likely not even representative of the locality, much less of the country as a whole. All "sightings" were made in or near large cities with important research facilities and in communities which could very well have been selected to test a given formulation. It is my opinion that long-term pills and injectables are not yet in general use in China, and I base this judgment on an analogy with the way the Chinese handled the development of contraceptive pills.

It has already been pointed out that while many articles in the 1960's were written on the use of the more conventional contraceptives (as well as on abortion and sterilization), only a very few were published on contraceptive steroids. And yet we now know that this is the period when most of the clinical work was conducted. Assuming that secrecy, per se, was not an objective (why would it be?), a reasonable explanation could be that virtually all the work was carried out in just two institutes (just as reported by Djerassi) which had on their staffs the few foreign-trained steroid chemists. Necessary or desirable communication, then, would have been localized and interpersonalized, eliminating the need to disseminate on-going research data through professional journals. While articles on IUD's, abortion and sterilization were attempting to disseminate information to practicing physicians and other medical personnel, until the oral pill was finally developed, clinically tested and mass-produced, there was no reason to write about it and no one with whom to communicate. When production was finally set in motion, the distribution of the pill and the relevant information about its use was handled quite naturally through the public health system itself, rather than by means of articles published in scientific journals which were not likely to reach the people in rural areas. The option to publish disappeared completely from 1967 until the early 1970's when the publication of all scientific (and other) journals was terminated by the Cultural Revolution.

A similar situation probably exists in connection with China's current research on contraceptives: it is carried on in just a few centers by relatively few highly trained specialists and therefore does not require the normal scientific cross-pollination through the publication of papers. When a particular method has been adequately tested and is ready for wide distribution, we will see references to it, not in medical or chemical journals, but in reports to action-oriented birth control conferences and in articles in public health and barefoot doctor journals. This is the practical vehicle to let people in the field know how a particular pill or injection should be used and what the possible side effects might be. Until then, it seems safe to assume that clinical work is still in progress and that the use of these contraceptives is evident only in test populations.

[41] NCNA, Nov. 26, 1974.

At the same time, there are a number of reasons to believe that the Chinese are very likely to come up with some important breakthroughs in the field of contraception. They have the necessary know-how, the facilities and, considering the size of their population, a need (an incentive) that is unsurpassed anywhere else in the world. They also have some important advantages over researchers in the West. Chinese scientists are much freer to conduct clinical testing of various formulations directly on women, saving much time in the process and responding to clearly visible and stated problems. The Chinese peasant woman is conditioned to endure more discomfort than the average American woman, so that work on reducing the possible side effects can be pursued while the contraceptive is in actual use.

To summarize, then, it would seem that China's research in contraceptive technology is not as diverse and not yet as advanced as it is in the West. However, this does not mean that her scientists are less likely to come up with at least some of the answers that everyone is seeking. In this connection it is well to keep in mind Djerassi's evaluation that "in the area of fertility control, Chinese participants are much too modest and foreigners are likely to be greatly misled by their reticence. The actual and potential competence is high and should not be underestimated." [42]

[42] Djerassi, *Studies in Family Planning*, p. 27.

Countryside: Barefoot Doctors Now "Wear Shoes"

BAREFOOT DOCTOR is the pet name given to peasant-doctors in China when they are likened to peasants in south China who used to farm the paddy-fields in their bare feet. At first they received only a brief medical training before taking on work as part-time doctors, part-time peasants, now they have developed into the main force on the preventive and curative front in the rural areas. In China, where most of the people live in the vast countryside, this has blazed a new trail in popularizing medical service.

In 1975 when Comrade Deng Xiaoping was in charge of the work of the State Council, he remarked graphically that barefoot doctors should eventually wear shoes. In saying this he was not only confirming the achievements made by barefoot doctors, but also expressing the hope that they would increase their medical knowledge and raise their professional proficiency. The gang of four, however, attacked this statement as an attempt to put barefoot doctors on a level with bourgeois intellectuals politically, and therefore, in essence, as a puff of "Right deviationist wind."

This correspondent paid a visit to Chuansha and Nanhui Counties on the outskirts of Shanghai to become acquainted with the work of the barefoot doctors there. They were still essentially ordinary peasants.

Zhang Jingxin who comes from a long line of doctors of traditional medicine is studying both traditional Chinese and Western medicine.

and have struck deep roots among the people as paramedics who dispense prompt and inexpensive medical treatment. In the course of their work they are steadily improving their skill.

I set out by car from the city proper via an underground tunnel beneath the Huangpu River and, after a dozen minutes' drive, reached Chuansha in the east of Shanghai.

From the Peasants and for the Peasants. Before the mid-50s, there were in this county only several small clinics jointly run by a few general practitioners in the towns. In 1958, when people's communes were established throughout the countryside, each rural commune set up its own health centre to train the first batch of health workers from among the peasants for the production brigades. After three months' study, the trainees each returned with a small medical kit for treating minor illnesses among their fellow-peasants. They were predecessors of the barefoot doctors.

In 1965, altogether 90,000 "peasant-doctors" were trained throughout the country according to a unified programme drawn up by the Ministry of Public Health. In Chuansha County over 300 people, averaging one per brigade, took part in a four-month training course. Members of this contingent later came to be called barefoot doctors and their numbers were greatly increased.

Barefoot doctors work in the clinics of their own brigades. Besides providing treatment to people in the vicinity, they also organize mass environmental sanitation campaigns, distribute medicine supplied by the state to prevent infectious diseases, and administer vaccines and prophylactic inoculations. They are also responsible for the work of family planning and popularizing hygienic knowledge among the masses.

In Chuansha, of the 570,000 agricultural population 1,032 are barefoot doctors. In other words, each barefoot doctor is roughly in charge of 550 peasants.

Things are better in the adjoining county of Nanhui with an agricultural population of 630,000. It has one barefoot doctor for 420 peasants.

When this correspondent arrived at the clinic of the Xinchang Production Brigade of Nanhui County, woman barefoot doctor Zhang Jingxin was busy giving an injection to a four-month-old baby just back from the hospital. The patient had been diagnosed here as a case of toxemic pneumonia one month ago and transferred to the Shanghai Children's Hospital for treatment. Zhang told me that the clinic had doctors on duty around the clock to give treatment to about 60 outpatients every day on an average. All common diseases could be treated here, she said.

Dr. Zhang, 26, began serving as a barefoot doctor seven years ago after four months' training in the commune medical centre. Later on, she had chances to further her education for a total of one and a half years at a traditional Chinese medical college and a public health school. All her three colleagues have had much the same experience. In addition to their rotation of duties at the outpatient department, each one is in charge either of maternity, pediatrics or health protection.

At present, the four of them are attending in turn a two-year course of weekly lectures on basic medical knowledge and clinical practice at the commune health centre. The commune plans to give all its barefoot doctors an opportunity for inservice training within five years starting from 1980.

Most of the barefoot doctors in the two counties lacked basic training years before, and efforts were far from enough to help them raise their level. For instance, although one-third of the barefoot doctors of Chuansha have done medical work for more than ten

Barefoot doctors studying in the Chuansha Public Health School.

years, only one-fifth of them have received as much as a year's training.

Retraining. The retraining now under way must, therefore, proceed from basic knowledge and technique. They study how to diagnose over 100 common diseases, how to treat them using traditional Chinese and Western medicines and how to prevent them. They learn the use and properties of over 100 kinds of medicines, and are taught how to collect, plant, process and use 130 kinds of medicinal herbs. Besides, they are expected to master about 30 diagnostic skills and 80 acupoints, and to acquire competence in guiding mass sanitation campaigns and family planning. Examinations based on these aims will be held and those who pass will be given a paramedic's certificate.

In Chuansha, a special course sponsored by the county's public health school for barefoot doctors has just begun. All 60 trainees have had at least five years of practical experience. According to the plan, they are expected to reach the level of a paramedic after the scheduled one-year study. The school also runs a three-year training course for paramedics, with trainees from junior middle school graduates. The two courses include about the same basic knowledge, but less time is spent for the former. It is hard to foretell now which course is the faster and better way to train medical workers. At any rate, the two methods will certainly help improve medical work in the rural areas.

On the outskirts of Shanghai, every person this correspondent spoke to, from commune members to leading cadres of the county health bureau, told me that the days when peasants could not afford medicines and had no medical attention whatever are gone for ever. Now peasants have their own doctors and medicine, but they wish to have higher quality health care. Much effort has to be made for the nation's vast countryside to achieve such favourable conditions prevailing on the outskirts of a big city.

Inside a village co-operative pharmacy.

When Peasants Are Sick

China has a system of co-operative medical service in the rural communes. It is a collective welfare measure which emerged in the 50s to early 60s and developed later. In units where the system is in effect, commune members are welcome to join of their own accord. After a centuries-long history of poverty and illness, peasants now receive guaranteed medical care for the first time by relying on their own collective strength.

Co-operative medical service was popularized in 1969 in production brigades (generally each with hundreds of peasant households) on the outskirts of Shanghai. Every commune member who joins pays one or two yuan a year to the clinic. The production brigade also finances it with money earmarked from public funds at the rate of one or two yuan per capita per annum. With the money, the brigade runs its own clinic. Those who have joined, when ill, have only to pay a registration fee and, if called for, an injection fee (5 cents each). The clinic bears all other medical expenses.

When the case turns out to be beyond the ability of the clinic and the patient has to be sent to the commune hospital or even to the county or city hospital, the clinic, in the light of its financial situation, answers for a certain portion of the patient's medical expenses.

In recent years, co-operative medical service on the outskirts of Shanghai has made great headway. Health centres run by a commune (embracing several brigades) or run jointly by the commune and production brigades have appeared. Set up on a larger scale and with more funds, the health centres are in a better position to do more for the peasants. In some places, all medical expenses are paid by the health centres for those who join. The above-mentioned baby who suffered from toxemic pneumonia was hospitalized in the Shanghai Children's Hospital for 28 days. Expenses reached a total of 133.63 yuan for medicines, X-rays and blood tests, as well as oxygen for emergency use. The sum was paid by the centre. □

Publications

Gill

6 copies of the following:

IDRC-077e - *Tsetse: the future for biological methods in integrated control*
IDRC-102e - *Low-cost technology options for sanitation*
IDRC-103e - *Biogas technology in the Third World: a multidisciplinary review*
IDRC-056e - *The delivery of health services in the People's Republic of China*
IDRC-153e - *SALUS: low-cost rural health care and health manpower training*
IDRC-043e - *Doctors and healers*
IDRC-136e - *Role of cassava in the etiology of endemic goitre and cretinism*

INFORMATION SERVICES

The political events which led to the establishment of the Peoples's Republic of China in 1949 hindered the development of information services at a time when the demand for more accurate information resources was growing. At present, the growing reality of the need for greater communication to advance the pace of modernization is creating a new emphasis on the development of information services. In China, in the area of science and technology, information dissemination relates both to bibliographic data as well as raw data, and the collection of general purpose scientific and technical information is considered to be an important function. Another interesting characteristic of the information function is the role of supplying equipment. Finally, the overall responsibility for supplying mass knowledge or innovations is an integral part of the information function.

The development of information services is a relatively new undertaking in China. The All China Association for Dissemination of Scientific and Technical Knowledge was established in 1950 to help disseminate current information and increase communication between scientists. At the same time, the Institute of Scientific and Technical Information was founded in 1956 to act as a clearinghouse for scientific information and serve user needs on a nationwide basis. It had also, as a novel side role, the responsibility for supplying items of technical equipment. Both organizations came under the Chinese Academy of Sciences which, in turn, answered directly to the State Council. The Chinese Academy of Sciences (CAS) itself was formed out of a merger of the Academica Sinica and the Beijing Academy of Sciences. The main original tasks of the CAS were stated as follows: To define the direction of scientific research; to administer programs; to recruit and train workers; to reorganize and consolidate programs; and to engage in dissemination research.

The major source of dissemination of foreign literature has been the Institute of Scientific and Technical Information, recently renamed the Institute of Scientific and Technical Information of China (ISTIC). Initially, its role seemed to be to act chiefly in collaboration with Guozi Shudian to acquire and distribute foreign literature within China, but individual societies and associations also maintain an independent information function, e.g. the Agricultural Association of China disseminates agricultural information. Prior to 1960 and the Sino-Soviet split, this function was largely aimed at exchanges with Soviet scientific institutions and bulk purchases through bookstores in Hongkong and Tokyo. It started out with a small staff of about 200 personnel, some of whom

were engaged on documentation of foreign literature. In 1960 it opened a branch office in Chongqing. In 1955 it founded a current awareness journal, Kexue Xinwen (Science News). In 1961, an index to Chinese scientific periodicals was issued in twenty-eight monthly parts covering 7,000 scientific serial publications in several languages, rather like Referativny Zhurnal in the U.S.S.R. In 1962, the Annotated List of Scientific and Technical Periodicals was issued, which contained fifteen abstracting journals covering different branches of science. A large proportion of the abstracts were translations from Referativny Zhurnal or extracts from Chemical Abstracts, (CAB) journals, etc. In fact, English language sources were most numerous. Translations were handled in the Translation Bureau and involved a great deal of work. During the early period of ISTIC (1956-1966), over 50 000 foreign texts were said to have been translated. The large amount of Russian translations has declined steadily since 1960. Up to that date approximately 50% of all texts translated were Russian. By 1970, the amount was said to be negligible, a mere 2%. ISTIC also acts as a publisher of scientific texts, which account for the largest share of published material in China at present. Scientific bookshops are popular and always full. Scientific and technical texts presently account for 63% of all publications.

In 1966 the Cultural Revolution severely impaired information and documentation. Publication of scientific and scholarly journals was brought to a halt and only political texts of a crude informative nature were permitted. At this time, Chinese scholarly journals sent abroad on exchange ceased altogether and in some cases were substituted with propaganda texts extolling certain features of the Cultural Revolution in terms of advances in agriculture of industry, etc. Many foreign libraries faced with such a situation simply gave up sending materials in exchange. Since China relied to a large extent on exchanges, library resources began to stagnate. Nevertheless, China did make purchases of certain books and reference tools. CAB journals continued to be taken regularly by Guozi Shudian, for instance, for the whole period from 1966 to the present time. There was some disruption at ISTIC and within the CAS structure, however, which impaired the work of documentation, and it is evident that abstracting and indexing slowed down or was severely curtailed as a result of the May 7th Movement and dispersal to the countryside. Foreign literature was viewed with suspicion and information dissemination received a new emphasis on indigenous knowledge. Production of the indexes became erratic and ceased distribution for a while.

The international interests of ISTIC are now considerable. 1978 acquisitions included: 35,000 research reports, 1,400 conference proceedings, 7,200 science and technology journals, 760,000 items on patents, 28,000 references to standards, 120,000 samples and brochures of manufacturers and equipment, and 203 film strips. The total domestic and international collection can be summarized as follows: 9,700 journals on science and technology, 600,000 monographs, doctoral dissertations and research reports, 6,000,000 abstracts of patents, and 300,000 materials on standards. ISTIC presently maintains exchanges with 63 countries, 53 international organizations and 2,000 individual institutions. The following catalogues are provided: general catalogue; Western subject catalogue; Japanese subject catalogue; Russian subject catalogue; catalogue of Western institutes and organizations with brief description; and catalogue of conference proceedings. In 1978 ISTIC compiled and published some 10,000,000 titles, mainly in its indexing and abstracting journals, and conducted literature searches in some 90 special subject areas. In addition, over 1,880,000 items were translated covering some 50 subject categories. Research reports covering nine major subject areas were also published, totalling 6,730,000 items.

The current policy of ISTIC is to stress document availability and it is operating a current awareness list backed up with journal circulation and photocopy services; a microfiche service; and patent searches.

In 1978 ISTIC responded to some 11,000 mail enquiries with the circulation of 3,500,000 copies of journal articles and 4,400,000 microfiche page copies. An additional activity is the Institute's role as conference organizer . For instance, between 1977-1979 it organized several national conferences on microbiology, laser applications, information processing and control of wild oats. ISTIC receives hard copies of foreign data bases,e.g. Chemical Abstracts, Agrindex, but are not contemplating running foreign data bases at the present time because of technical difficulties. However, China is studying the possibility of introducing such services in the future. Chemical Abstracts has received its first order for computer readable information files for China. The Chinese Society for Chemical Industry in Beijing requested, and has been granted, licences to use five Chemical Abstracts computer files. The licences were arranged through the China National Publication Import Corporation of Beijing.[1]

1. National Federation of Abstracting and Indexing Services (NFAIS) Newsletter, 1979, 21 (2), p.

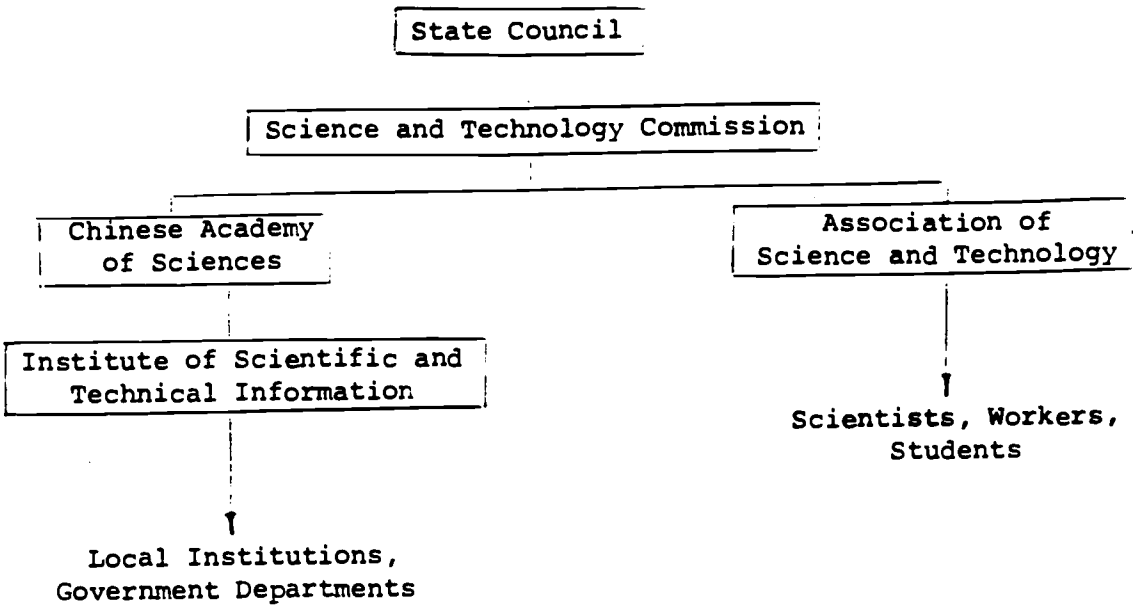
There is an apparent need in China for the transfer of large quantities of Scientific information. Translation of foreign text is inadequate to the task and the Chinese appear to be aware of the danger of poor quality in massive translation attempts. They seem to have chosen the dual approach of translation of foreign text and the selection of one foreign language (English) for the information transfer. This is reflected in the large investment in foreign language teaching, especially English. The present intensity of English-language learning is without precedent and it is not uncommon to find laborers, peasants and artisans assiduously learning English for at least half an hour a day.[2]

At present information storage and retrieval is by manual methods. Both Chinese and English language material, which now makes up about 70% of the foreign language material, are handled separately because of the translation problem. A dual service operates because a large number of scientist read English. ISTIC is, therefore, interested in developing a separate computer system for its English language materials. As their computer capability is extended over the next few years, it is hoped to be able to operate SDI services in selected subject areas. In this respect, we were told, it is hoped that ISTIC staff will be able to go abroad for training to foreign information analysis centres to study modern documentation techniques.

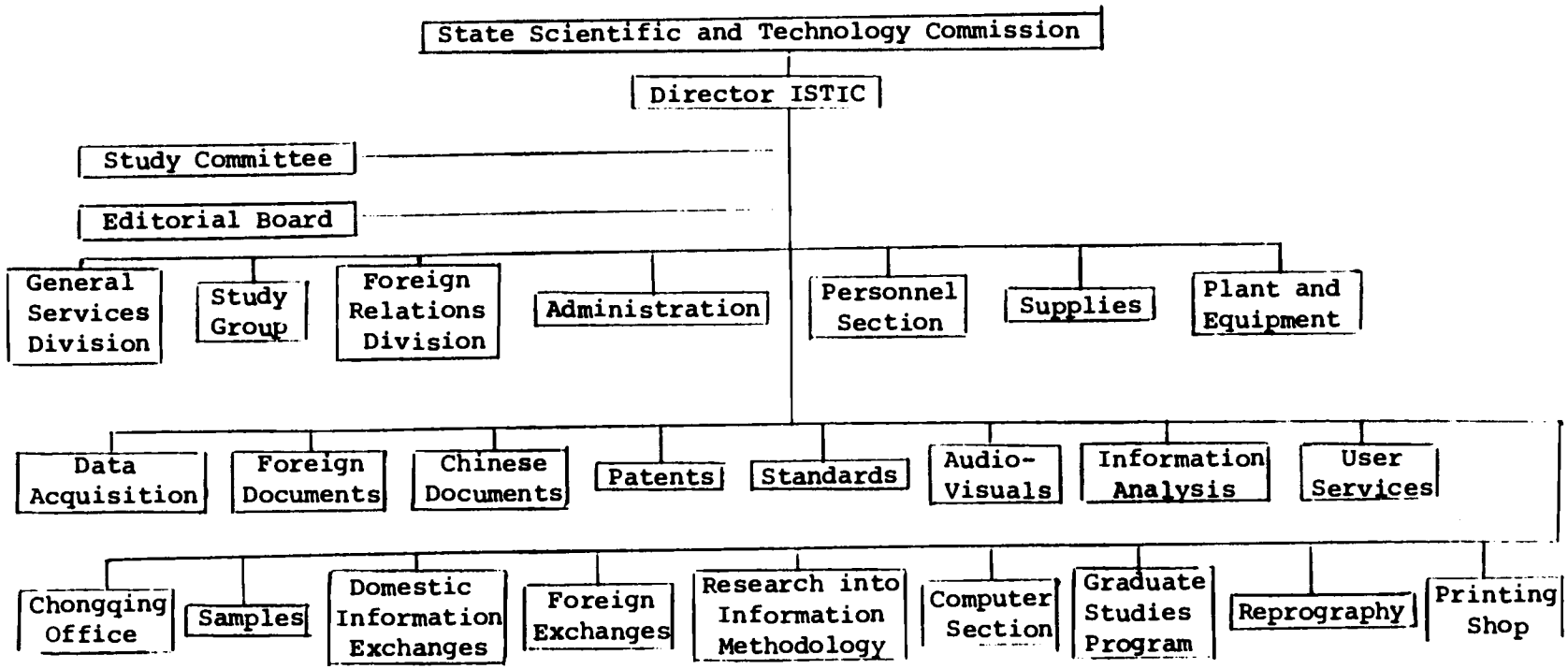
Research into methodology is currently very important. We were told that Vice-Premier and Minister-in-Charge of the State Scientific and Technology Commission Fang Yi had stated at the recent National Science Conference in Beijing that by 1985 China will set up data banks and information analysis centers for various disciplines. China could join, through Unesco and FAO, international systems like NATIS and AGRIS that would benefit the development of scientific knowledge in China and help the modernization drive. It was also possible that China would implement some foreign systems, e.g. MARC. Software compatibility was a major drawback. ISTIC considers the large commercial data bases expensive to lease, own and operate, e.g. the CAB data base, CA Condensates, etc., and does not see DIALOG as an alternative either because even with the possibility of a satellite link-up, costs will be a major consideration and China has to consider the other cost-benefit of utilizing such a system. International cooperative systems seem to offer the most satisfactory method of obtaining information in the long term.

2. Our group was continually being stopped to give pronunciation lessons to students in parks, shop assistants, and people in the street.

Other institutions conducting studies into information storage and retrieval are the Chinese Academy of Sciences and the Beijing Institute of Computer Technology (BICT) which is developing a library information system for the CAS library. The Academy is a major library resource in China as well as the greater Beijing area. In 1959, it had about 2 million volumes, which had grown from a nucleus of 250,000 under the old pre-1949 Academica Sinica. Presently it holds close on 5 million volumes and nearly 25,000 periodicals. This does not include individual branch, province and institute.



STRUCTURE OF THE STATE SCIENTIFIC INFORMATION SYSTEM



THE ORGANIZATION OF ISTIC

OFFICIAL LIST OF END-USERS
for
CPR/79/002 "Information Processing and Training Centre
for International Economic Cooperation"

English Name/Chinese Name	Activities	Comments
Documentation Centre of the Chinese Mechanical Engineering Society/ 中国机械工程学会资料中心	Collect, lend, search, copy, and print books and materials concerned with mechanical engineering; train information workers (approx. 3000) from mechanical engineering institutes and enterprises nationwide in the application of computers in the information field; edit and publish mechanical engineering abstracts and indices	Site of large-scale minicomputer
Scientific and Technical Information Institute, Ministry of Communication/ 交通部科学技术情报所	Collect and research documents concerned with the economics and management of traffic and transportation, highway and bridge engineering, road construction, truck repair and service, and traffic engineering	Previous UNDP documents referred to this user as the Ministry of Transportation for ease of understanding
Information Institute, Ministry of Geology/ 地质部情报所	Management and information retrieval of books and materials concerned with geological resources	Formerly called the State Bureau of Geology
Information Institute, Ministry of Water Conservancy and Power/ 水利电力部情报所	Collect, analyze, and retrieve documents and materials concerned with water conservancy, power production, power facility construction and management	Ministry has recently been divided into two parts; therefore, the name of the institute will be soon changed and it will also be divided

English Name/Chinese Name	Activities	Comments
Production Management Bureau, First Ministry of Machine Building/ 第一机械工业部生产管理局	Responsible for the production, organization, distribution, and the technical and economic analysis of civilian machinery products for China; main products include: mineral mining installations, metallurgic facilities, power generating devices, automobiles, machine	Applications are limited to technical and economic analysis and statistical analysis
Ministry of Electric Power/ 电力工业部		Formerly part of the Ministry of Water Conservancy and Power
a. Beijing Electric Administration Bureau/ 北京电业管理局	Responsible for the sale, management, generation, operation, and dispatch of power in the Beijing district network	
b. Computer Application Department of the Electric Power Research Institute/ 电力科学研究院计算机应用研究所	Power system calculations and data processing	
c. Central Bureau of Electric Power Construction / 电力建设总局	Planning, design, and construction of power stations, hydropower station, and transmission-distribution engineering	
Ministry for Economic Relations with Foreign Countries / 对外经济关系部	Responsible for the provision of economic and technical assistance to other developing countries; develops economic and technical cooperation programs with foreign countries and United Nations' agencies	Site of large-scale minicomputer

English Name/Chinese Name	Activities	Comments
Storage Centre of Geological Documents, Ministry of Geology/ [illegible]	Collect, store, search, and print geological documents and maps; analysis and simulation of the geological evaluation process; plot geological maps; analysis and correlation of stratigraphy	Formerly called State Bureau of Geology
Ministry of Commerce / 商业部	Responsible for the management of supply, transportation, allocation, storage, financial, and statistical analysis of domestic goods (e.g., canned food, clothes, household and domestic products) in daily use, on a nationwide basis	
Beijing Municipal Bureau of Food/ 北京市粮食局	Responsible for the distribution and supply of food and edible oils in the Beijing district; including purchase, sale, transfer, storage, and processing activities	
Beijing Municipal First Bureau of Commerce/ 北京市第一商业局	Responsible for the wholesale and retail of domestic goods in the Beijing district	
Beijing Municipal Capital Construction Commission/ 北京市基本建设委员会	Responsible for the planning and supervision of construction in the Beijing district including homes and buildings, water supply, waste disposal, gas supply, district heating, and the maintenance and construction of roads	

English Name/Chinese Name	Activities	Comments
Beijing Municipal Bureau of Transportation/ 北京市交通运输局	Scheduling and dispatch of bulk carriers in the Beijing district; transportation dispatch of long distance passenger vehicles; management of truck spare parts	
Beijing Municipal Bureau of Statistics/ 北京市统计局	Analysis and collection of information statistics of all departments of the national economy in the Beijing district; includes such areas as agriculture, capital construction, industry, commercial sales, and transportation	
Beijing Municipal Bureau of Health/ 北京市卫生局	Responsible for hospital management, medical treatment, health care, medical teaching, and research in the Beijing district	
Chinese People's University/ 中国人民大学	Primary orientation in the economic information management area is mathematics, programming, economics, management, accounting, statistics, and planning; graduates to be employed by the State Planning Commission, large enterprises, and ministries of agriculture, machine building, and textiles; faculty in the economic information management department now total 60 with 90 students; plan to add 50 students per year to 1982 and then 200 new each year	Site of a medium-scale minicomputer to be used by the Economic Information Management Department

English Name/Chinese Name	Activities	Comments
Beijing Institute of Computing Technology/ 北京计算技术学院	New 4-year institute is directly responsible for educating students to work on the staff of end-users involved in UNDP project; students are to be educated in computer sciences, software engineering, and computer technology; present enrollment is 506 and staff totals 92; peak year will be 1983 when enrollment will level off to 400 new students per year with 400 teacher faculty	Site of a medium-scale minicomputer; new address, Institute campus presently under construction
Beijing Municipal Computing Centre/ 北京市计算中心	Provides computing for enterprises in the Beijing district (e.g., wage calculations, weather forecasting, data analysis)	Use will be limited to training and research
Chinese Academy of Social Sciences, Institute of Industrial Economics/ 中国社会科学院工业经济研究所	Nationwide responsibility for work in industrial economics; research includes correlation analysis among industrial sectors and assessment of policies for development; performs evaluations of effects of industrial investments, demand versus industrial output, energy conservation proposals, and feasibility studies of industrial construction; provides consultant services in industrial economics; performs financial analysis and management for industrial enterprises	Will share large-scale minicomputer at the Documentation Centre of the Chinese Mechanical Engineering Society as well as be a user of the mainframe system

English Name/Chinese Name	Activities	Comments
Chinese Academy of Medical Sciences/ 中国医学科学院 Beijing Medical College/ 北京医学院 Beijing Hospital/ 北京医院 Academy of Traditional Chinese Medicine/ 中医科学院 Beijing College of Traditional Chinese Medicine/ 北京中医学院	These medical organizations are involved in the retrieval of medical information, hospital management, fundamental research, and training	
Institute of Information on Chemical Engineering Science and Technology, Ministry of Chemical Engineering/ 化学工业部化工科学技术情报研究所	Responsible for information retrieval, management of the chemical engineering library, publication of indices, and the translation of abstracts to Chinese	
Office of Environment Protection Leading Group of State Council [illegible]	Involved in information retrieval of environmental data bases and impact assessments	Acts as focal point in China for the UNEP Infoterra program

INTERNATIONAL DEVELOPMENT RESEARCH CENTRE

CENTRE DE RECHERCHES POUR LE DEVELOPPEMENT INTERNATIONAL

CANADA

MEMORANDUM

TO/A: J. Woolston

FROM/DE: K. Broadbent

SUBJECT/OBJET: Chinese institutions

DATE: 17 July 1980

File: 4166-22

Herewith a list of priority institutions for your forthcoming visit. A more detailed background on these places, as well as China itself, will be presented prior to your visit.

A. BEIJING (Peking)

1. State Science and Technology Commission

Minister: Fang yi

The Commission has overall jurisdiction on policy and planning matters relating to documentation and information.

2. Scientific and Technical Association

A major component in the dissemination of foreign and indigenous information throughout China, especially to various sectors.

3. Chinese Academy of Sciences (CAS)

a. (Beijing) Institute of Computer Technology

Director: Yang Gangwu
Deputy Director: Li Runwen

Within this Institute is the 9th Research Department whose

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responsibilities include research into Chinese character input and storage and retrieval of information. This Institute is taking some of the UNDP HP series. It has specifically requested IDRC assistance. The CAS has one of the largest specialized libraries in China and you may wish to visit it.

b. Institute of Scientific and Technical Information of China (ISTIC)

Director: Nie Zhongyong

This is the major institution for information matters. It is the main recipient of the UNDP grant. In particular, you will be interested to meet Mr. Yao weifan, Director of Methodology, who is developing software for bibliographic purposes. He has asked for IDRC support and MINISIS.

c. Beijing (National) Library

d. Chinese Academy of Social Sciences (CASS)

Institute of Scientific Information (for DEVSIS)

e. Chinese Academy of Agriculture and Forestry Science (CAAFS)

f. Chinese Academy of Medical Sciences (CAMS)

Both the above have information functions but I have not visited either myself. If interested, I suggest you ask for the relevant person to discuss information needs.

g. Beijing University

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B. NANJING

Nanjing University

Experimenting with machine-readable format in the library. It has a large Computer Science Department which is co-ordinating this.

C. HOFEI, Anhui Province (near Nanjing)

China University of Science and Technology

D. SHANGHAI

1. Fudan University

2. Shanghai Normal University

3. Jiaotong University

All three have Computer Departments which are involved in developing information systems. Fudan has an OCR experiment. Shanghai Normal has its own computer factory, etc. Qian Feng is the person to see in this Department.

4. Shanghai Electrical Instruments Institute

Director: Zhi Bingyi

He is developing a Chinese character input system and is interested in assistance. It is the only interactive method we saw in China at the time of my visit.

/continued...

E. GUANGZHOU (Canton)

Southern Institute of Technology

Whilst in Beijing you will probably visit, in conjunction with the rest of the party, the Ministry for Economic Relations with Foreign Countries. If this is not on the general itinerary, you should certainly press for it to be included, because the Ministry is responsible for the provision of economic and technical assistance to developing countries as well as ratifying agreements which other countries have with China, especially all U.N. agencies.

Incidentally, UNDP now have a permanent office in Beijing and you should arrange to see the representative while you are there as he will be the most likely person with up-to-date information on the UNDP information package. He is Mr. Nessim Shallom, a U.S. citizen.

Since I was in the PRC I have heard that UNDP will be providing the Chinese People's University (No. 39 Hai Dianlu (Western Suburbs)) with one of the HP series for economic information (DEVSIS?).

K. P. Broadbent

KPB/ERM
80-OG-726

c.c. S. Akhtar

K. Broadfoot
1/15

INTERNATIONAL DEVELOPMENT RESEARCH CENTRE

CENTRE DE RECHERCHES POUR LE DEVELOPPEMENT INTERNATIONA

CANADA

3-N-80-7411
Part 32

19 August 1980

Mr. Chen Yu Hua
814 S. Saratoga Ave.
Apt. J101
San Jose, CA
95129

Dear Mr. Chen

I wish to take this opportunity to thank you for allowing Mr. Woolston and I to spend last Wednesday evening with you and your colleagues. We both enjoyed discussing MINISIS and its potential applications with you. I hope that your studies at Hewlett-Packard are continuing to proceed well.

As I promised you I am enclosing more information concerning MINISIS. The documents are:-

1. "MINISIS" which gives a very general overview of the MINISIS software package

2. "An Introduction to MINISIS" which provides more detailed specification of the applications and functions of MINISIS

3. "Information Retrieval and Library Management: An Interactive Minicomputer System" which provides a technical description of the theoretical foundations of MINISIS.

4. "The design and implementation of a data base system for bibliographic applications on a minicomputer" - the thesis paper prepared by Ms Faye Daneliuk, the designer of the MINISIS system. One hard copy and four microfiche copies are enclosed.

5. "MINISIS Newsletter" which is the newsletter of the MINISIS Users Group - a group composed of organizations that have signed MINISIS licensing agreements with IDRC.

The MINISIS user documentation consists of over 400 pages. Therefore, rather than sending printed copies in the mail, which would probably take a very long time, I am sending a magnetic tape separately.

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This tape will contain the documentation files and a job to print the manuals on the line printer. You will then be able to print as many copies of the manuals as you wish.

I trust that the enclosed information will be useful. If you have any questions concerning MINISIS or its application, please do not hesitate to contact me. I hope that the remainder of your stay in North America is pleasant and that we may meet again soon.

Yours truly

T.A.G. Gavin

T.A.G. Gavin
Coordinator
Computer Resources

TG/JA
Encls.

INTERNATIONAL DEVELOPMENT RESEARCH CENTRE

CENTRE DE RECHERCHES POUR LE DEVELOPPEMENT INTERNATIONAL

CANADA

MEMORANDUM

TO/A: DATE: August 15, 1980.

FROM DE: John E. Woolston & T.A.G. Gavin File: 3-80-7411 (26)

SUBJECT OBJET: Visit to Hewlett-Packard, Palo Alto, California, 1980-08-13 - J.E. Woolston & T.A.G. Gavin

Persons Involved

Paul Ely	: Vice-President General Manager Computer Systems Group
Mike Naggiar	: Icon Computer Marketing Manager
Gretchen Wilson	: HP-3000 Marketing Representative
Olen Morain	: CSD Sales Manager, Computer Support Div.
Dick Warmington	: CSD Marketing Manager
Don Andrusco	: CSD (Asia)
Dick Horner	: CSD (Latin America)
Barbara Doebler	: Assistant Director of Hewlett-Packard Foundation.
James Pfeifer	: (IDRC)
John Woolston	: (IDRC)
Terry Gavin	: (IDRC)

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We were given a cordial reception; the Hewlett-Packard Corporation does give the impression of being interested in what we are doing; Mr. Naggiar spent the previous evening with us; Mr. Ely gave us more time than he had scheduled; Mr. Warmington and his associates stayed with us until 18:00 hrs.

We explained about IDRC, about the IS program and about our MINISIS activities. Hewlett-Packard explained about its world-wide commercial activities in relation to its computer products (particularly 3000 series). We learned about the "corporate-giving" activity, which amounts to 1% of pre-tax profits, and the Hewlett-Packard Foundation.

However, there were no generous offers.

We steered the discussions on to three main topics:

- What are H-P's plans for entering new countries? What can be done to reduce the cost to a purchaser buying the first machine in a new country? (at present the first purchaser has to bear the cost of establishing a service organization, maintenance kits and spare parts).

- What are the possibilities of H-P being generous in respect to organizations - particularly UN organizations - that are managing information networks? We had hoped that the company might see an investment at this point as having a cascade potential - resulting in purchases for the other centres in the network.

- What is H-P going to do to improve its technical capacity to handle character sets for (a) languages which employ diacriticals, particularly French and Spanish, and (b) languages that have entirely different character sets, particularly Arabic.

Clearly H-P is not prepared to make front-end investments (new countries, UN agencies) merely in the hope of securing future sales based on MINISIS applications. Its principal target customer community is the manufacturing industry, especially the multinationals. These industries are the ones that are most likely to make quantity purchases of computers. MINISIS applications would be seen only as a minor increment in assessing the potential market in a given country or region.

It was agreed, however, that there should be closer consultation* when we see MINISIS opportunities in a country where H-P is not now active, we can inform H-P so that they can advise us of their present plans and so that they can incorporate our advice into their future plans. These consultations are likely to be on a country-by-country basis, and we spent a good part of the afternoon reviewing the present situation in the developing regions:

Latin America

H-P considers that it is well established in Mexico, Guatemala and Venezuela; it has some activity in Argentina. It is considering the possibility of opening into Chile, with Colombia a possible next on the list. It has no plans to enter Costa Rica, Peru or Ecuador.

H-P (California) does not have full documentation of its products in Spanish. Since, however, it has a very effective organization working in Spain, it will find out whether the documentation has been translated there.

H-P has activity in the Sao Paulo-Rio de Janeiro area of Brazil, but this is now much impeded by Brazilian import restrictions. PROMON Engineering is an OEM, but dealing mostly with HP-1000 series.

We spent a lot of time talking about the possibility of putting a machine into Trinidad. Unless there is an organization that is prepared to take the risk of establishing a capacity to do computer maintenance and servicing (unlikely), the best chance might be to get a H-P person in Port-of-Spain for 6 months, during which he could train Trinidian staff directly associated with the computer. But there would still be the cost of the kits and the spare parts - as well as the salary, etc. of the H-P person. H-P is working on the production of "Self-Support" manuals and training programs which - when available - could facilitate such a solution; it is expected that H-P will be in a position to be more positive about "Self-Support" from mid-1981.

Africa

H-P is only in South Africa. They have been impressed with SERIC's ingenuity and effectiveness in supporting hardware in other countries.

We talked particularly about Tunisia (location of our MINISIS application, but also the present headquarters of the Arab League) and Egypt (which now enjoys very substantial American aid). H-P is planning to make an early study of the market potential in Egypt, but does not appear to be interested in Tunisia.

* Mr. Olen Morain was identified by Mr. Paul Ely as our most appropriate contact for future consultations.

..4

Asia

H-P is very active in the Arabian peninsula and, with some difficulty, maintains 25 HP3000's in Baghdad, Iraq. While there is as yet only one of these machines in India (not a H-P sale), the company has an effective distributor (Blue Star) for its other products in this country. In preparation for the future, Indians have been trained on the HP3000 series, and should be able to provide service in Bombay, Delhi and Bangalore. However, India rules will not permit Blue Star to stock parts, so each installation needs its own. Much care will be needed to ensure adequate air-conditioning and power supplies at all installations.

The company considers itself to be in good positions in Singapore, Malaysia (Penang and KL), Hong Kong and Korea. It has a reasonably effective distributor in the Philippines. As yet, the HP3000 is not available in Thailand and Indonesia, but these countries could be entered as early as 1981. There are no plans for Pakistan or Sri Lanka.

Eastern Europe

Service is provided; there are two HP-3000's already in Rumania. To date, in countries that have H-P's installed, the maintenance has been done by government agencies, trained by H-P.

The "Corporate-Giving" Possibilities

The corporate gifts are aimed primarily at educational institutions, but can also go to hospitals, voluntary agencies, etc. The possibility of gifts to United Nations agencies exists, but generally is not strong.

The decision on a gift is taken jointly by the H-P management in the particular territory and by corporate headquarters in Palo Alto. Hence requests should be addressed to both. Gifts can, and often do, take the form of H-P products rather than cash.

The Foundation was admitted to be a mechanism for storing corporate-giving funds that remain unspent at the end of a financial year. But, once committed to the Foundation, they can only be spent in the United States.

The HP-3000 at the University of Singapore (where MINISIS is to be installed) was a gift from the company. The company would probably welcome an application for a similar gift to an educational institution in Malaysia.

We explained about the interest of the United Nations University (Tokyo) in MINISIS. Given the rather significant level of business that H-P has in Japan (through a joint venture), there is perhaps a prospect of it giving favorable consideration to a request from this University. We were told that we could encourage the University to put in an application. Addresses:

Mr. Ken Sassaoka
President and General Manager
Yokogawa-Hewlett-Packard Ltd.
29-21 Takaido Higashi 3-chome
Suginami-ku, Tokyo 168

Mr. Sy Corensen
Marketing and Communications Manager
3495 Deer Creek Road
Palo Alto, California 94304

Character Sets

We really did not see the people who would be technically qualified to speak on this subject. However, we were encouraged to arrange a visit by Faye Daneliuk who would then be able to meet appropriate people in the R&D departments. Certainly there is some heightening of H-P's awareness of the need to improve its products in this respect. Mr. Andrusco had recently been in Bangkok and had been impressed by the fact that any entry into the Thai market would depend on having a capacity to handle Thai characters.

The China Situation

At H-P, we were told about the very high-level activity (Mr. Packard himself) that is going into the company's China program. A team was currently in Beijing, and some 30 Chinese were undergoing training at Palo Alto. If the export licenses come through, the five HP3000's ordered by the UNDP could be installed by the end of November 1980 (other predictions were less optimistic).

We spent the evening of our second day with representatives of the UNDP's consultant, Phoenix Associates (Mr. Tom Follett and Mr. Larry ?) as well as with some eight or so Chinese students.

According to Phoenix Associates, the UNDP has sent the MINISIS model licensing agreement to Beijing to get the Chinese Government's concurrence. The Chinese students expressed much interest in acquiring these programs and offered to write to Beijing to speed the process.

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The five UNDP-provided HP3000's will be installed at:

1) The Ministry of Economic Relations
   with Developing Countries

2) The People's University of Beijing

3) The Beijing Institute for Computing Technology

4) The Documentation Centre of the Mechanical
   Engineering Society

5) The Beijing International Information Centre

MINISIS will certainly be needed at 4; probably also at 2 and 5.

The group expressed a preference for MINISIS training in Beijing rather than Ottawa.

Individually, several of the Chinese group suggested I make particular contacts during my visit to Beijing in September. Those recommended were:

1) Mr. Chang Xi
   Documentation Centre of the Mechanical
   Engineering Society
   #1 South Street,
   Bai-wai Znung, Beijing
   Telephone: 89-3810

   (the above contact recommended by Mr. Luo Yong-Wu who, obviously, may be our prime contact after MINISIS is installed)

2) Professor Gean Zuo
   Dept. of Data Processing
   People's University of Beijing
   Telephone: 28-1998

3) Mr. Rong Xing Qan
   Ministry for Economic Relations with
   Foreign Countries
   Fifth Department, Computer Centre
   Telephone: 44-5678

Separately, the representatives of Phoenix Associates told us that Mr. Rong Xing Qan is a very powerful man in a very powerful Ministry. Also that he is very capable. They felt that he would be a very useful contact for the IDRC delegation as a whole.

[illegible] Broadbent ✓
[illegible] Pfeifer
Stern Jorssen
Paul McConnell (for Ivan Head)

1980 07 22 File: 4166-22

Dr. Wang Wei
Deputy Director
Institute of Scientific and
Technical Information of China
P. O. Box 640
Beijing
People's Republic of China

Dear Dr. Wang Wei:

I was delighted to receive your letter of 7 July, 1980 and to learn of your interest in establishing a closer relationship with IDRC in the field of information science. We would certainly welcome this.

There are two things going on at this time which may lead to specific opportunities:

1. The United Nations Development Program (UNDP) has requested us to make available our MINISIS programs for installation on Hewlett Packard computers that the UNDP is providing to your country. We are expecting trainees from China to be in Ottawa for about three weeks starting 8 September, 1980 and we will need - in co-operation with UNDP - to negotiate appropriate agreements for the installation and maintenance of the programs.

2. The State Scientific and Technology Commission has invited IDRC to send a mission to China in the month of September. It is expected that this mission will be led by our President, Mr. Ivan Head, and that I will be a member of his delegation. I certainly hope that, while in your country, I will have an opportunity to visit ISTIC and to pursue the possibilities that are raised in your letter.

...2

Hence I welcome the contact that you have made, and I look forward to a growing program of cooperation between us.

Yours sincerely,

John B. Woolston
Director
Information Sciences
Division

JEW:ms

c.c.: I. Head

1 ~ HEAD F.Y.I

中国科学技术情报研究所

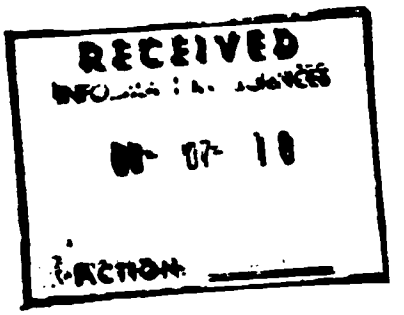
INSTITUTE OF SCIENTIFIC AND TECHNICAL INFORMATION OF CHINA

(ISTIC)

Telegrams: ISTIC　　中华人民共和国　　P. O. Box 640, Beijing
Telephone: 46 47 46　　北京六四〇信箱　　PEOPLE'S REPUBLIC OF CHINA

July 7, 1980

Dr. John E. Woolston
Director, Information Sciences Division
Internationa Development Research
Centre (IDRC)
Ottawa, Canada



Dear Dr. Woolston,

Last November, when I led the Survey Delegation of National S&T Information Centre of China to visit United States of America, I discussed, with Prof. Ching-chih Chen, Associate Dean of the Graduate School of Library and Information Science, Simmons College, Boston, the project of organizing a training program for senior staff of information centres and libraries in China which would be lectured by the information experts from United States and Canada. Dr. Ching-chih Chen fully appreciated this project and advised me to come into direct contact with you to explore the possibility of cooperation with IDRC on this project.

The Institute of Scientific and Technical Information of China (ISTIC), under the leadership of the State Scientific and Technological Commission of the People's Republic of China, is the national information centre for science and technology. Representing the People's Republic of China, ISTIC is a member of the Intergovernment Council of UNESCO/PGI and the national member of FUD. With the cooperation of UNESCO and the former ENIST, ISTIC successfully held the Training Course on Automated Information and On-line Retrieval for 40 information and library workers from all over China in September 1979.

As you may know, our country is now going all out to realize her modernization. Being an information expert, you certainly could understand how important the role information services play in this process. In a developing country like

Dr. John E. Woolston
IDRC
Ottawa, Canada

July 7, 1980

China, training of personnel is one of the decisive factors to achieve her modernisation in the information and library fields. We wish very much to cooperate with foreign friends and organizations and receive support and assistance from them in this respect. Therefore, I would like to consult with you the feasibility of a cooperation between IDRC and this institute in providing financial assistance for a training program for Chinese information and library specialists.

We have learned that IDRC has made a greater contribution to the development of the regional information system of south-eastern Asia. Since last year, this institute has established some friendly connections with IDRC. Mr. Kieran P. Broadbent from IDRC visited this institute last year with the group of Chinese-English Translation Assistance (CETA), and from then on a corresponding relation has been established between Mr. Yao Weifan, Director of the Division of Information Methodology in ISTIC, and Mr. Kieran P. Broadbent, Mr. Gisele Morin-Labatut and Mr. J.A.G. Gavin in IDRC, who have sent us many valuable materials. On the request from the Asian Centre of IDRC, this institute has also sent them some materials on Chinese character encoding. We wish with confidence that the existing friendly relations of cooperation will be further enlarged and developed.

I am looking forward to hearing from you and would be very grateful to you if IDRC could kindly offer her consideration and cooperation to the wishes showed above.

With my best regards.

Yours sincerely

王维

Wang Wei
Deputy Director
ISTIC

UNITED NATIONS DEVELOPMENT PROGRAMME

PROGRAMME DES NATIONS UNIES POUR LE DEVELOPPEMENT

OFFICE FOR PROJECTS EXECUTION

ONE UNITED NATIONS PLAZA
NEW YORK, N.Y. 10017

TELEPHONE: 754-0007

CABLE ADDRESS UNDEVPRO • NEW YORK

REFERENCE CPR/79/002

25 April 1980

Dear Dr. Woolston,

Subject: CPR/79/002 - Information Processing and Training Centre for International Economic Co-operation

Please refer to your telephone conversation 22 April 1980 with Mr. Bjorgung.

I am writing to confirm the strong interest of the national project authorities, as well as this office, in arranging the use of MINISIS on the Hewlett-Packard 3000 III computers soon to be delivered to China under the auspices of the above project.

The MINISIS would be used by the Documentation Centre and the Ministry of Economic Relations with Foreign Countries in the first instance. Later, it is anticipated that among the 24 other end users of the computing equipment in this project, numerous other end users would be found; however, the requirement now is to plan for a manageable beginning. Further details on the end users may be found in the attached list - please regard it as confidential.

Two project personnel are pursuing graduate studies, non-degree, at Stanford University, and they would benefit from participating in one of the three-week MINISIS courses. If possible, they should attend the next course, in mid-August 1980. Anything later would be very difficult.

Please let me know the IDRC response to granting a free license for the UN, on behalf of China, for use MINISIS under this project, and to train two persons as mentioned above.

Looking forward to the favour of your early reply. If you have the need for answers to technical questions, contact Mr. Tom Follett at Tel. 415 - 654-9100.

Yours sincerely,

J. John B. Cella
Senior Director
Office for Projects Execution

Dr. J. Woolston
Director, Div. of Information Sciences, International Development Research Centre
60 Queens St
P.O. Box 8500
Ottawa - Canada K1G 3H9

Copy to FW F.Y.I.

3-P-77-0151
Part 32

28 March 1980

Mr. Yao Wei-fan
Director of the Division of
Methodology
Institute of Scientific and Technical
Information of China (ISTIC)
Peking
People's Republic of China

Dear Mr. Yao

Thank you very much for your recent letter requesting information about MINISIS. As your questions were of a technical nature, Ms Gisèle Morin-Labatut has asked me to reply. I have enclosed with this letter several documents which describe the functions of the MINISIS software system in some detail, therefore I will just briefly discuss the questions you raised.

Let me begin by giving a very brief history of IDRC's involvement with computerized information management systems. When IDRC was established in 1970, one of the program divisions created was Information Sciences. A function of this Division is to develop some expertise in computerized processing, storage and retrieval of bibliographic information. The purpose of this is to provide a service to the Centre's own staff and to develop experience in order to advise and aid institutions involved in international development research.

In 1973, the Information Sciences Division implemented the ISIS (Integrated Set of Information Systems) software package which was developed by the International Labour Office in Geneva. Using this package, Information Sciences created a data base of the holdings of the IDRC library and provided access to the data bases of various international organizations, such as ILO and FAO. IDRC became an active member of the ISIS family of users. We participated in making enhancements and modifications to one of the versions of ISIS. IDRC helped establish ISIS resource centres such as the ISIS Resource Centre in Islamabad, Pakistan, and the Instituto Tecnologico de Costa Rica, both of which are still active.

ISIS proved to be an adequate package for the purposes for which IDRC was using it. However, ISIS requires an IBM computer and was being run at a commercial service bureau. This proved to be very expensive and

...2

did not permit tight control over the operation of the system. Also, an increasing number of institutions that wanted to initiate bibliographic information retrieval services either could not afford a large IBM computer to run ISIS, or could not arrange to share the use of a suitable computer.

In 1975, at the time that smaller computers were becoming more easily available, IDRC instituted a project to implement an information retrieval package on a relatively inexpensive minicomputer. A small project team evaluated the minicomputer hardware and software available at the time and eventually decided upon the HP 3000 as a suitable machine. A new information management system called MINISIS was designed by Ms Faye Daneliuk. Two of her documents, "The design and implementation of a data base system for bibliographic applications on a minicomputer" and "Information Retrieval and Library Management: An Interactive Minicomputer System" are enclosed with this letter.

The design of MINISIS began in early 1976 with implementation of the software starting in June 1976. By December of 1977 the data bases of the IDRC library had been transferred from the commercial service bureau to IDRC's own computer using MINISIS. Since that time the IDRC bibliographic applications have used MINISIS exclusively. The software is continually being enhanced to add new features that are required by our local users at IDRC and our licensees around the world.

MINISIS is functionally similar to ISIS. That is, it interactively allows the user to store, modify, retrieve, sort, and print bibliographic or textual data. MINISIS, however, takes advantage of the friendliness and powerful features of the Hewlett-Packard software. MINISIS has some features, such as ability to perform arithmetic functions and produce simple financial reports, which do not exist in ISIS. Data bases created using ISIS or MINISIS may be exchanged by generating magnetic tapes in the ISO 2709 exchange format. The enclosed document "An Introduction to MINISIS" describes the major functions and range of applications of the MINISIS package in more detail.

Since MINISIS has been implemented at IDRC, there has been considerable interest expressed by many organizations world wide. Among the institutions currently using MINISIS are the Centre National de Documentation Agricole in Tunisia, the Service Présidentiel de l'Informatique in Zaire, the Information Systems Unit of the Department of Economic and Social Affairs of the United Nations in New York, the Agricultural College of The Netherlands in Wageningen, and the International Labour Office in Geneva. All of these organizations have signed licensing agreements with IDRC to use MINISIS. Licensees become members of the MINISIS Users' Group that pools information on new applications and common problems. The Users'

...3

Group also advises IDRC on future developments of the software. For a foreign institution such as yours, a licensing agreement for the MINISIS software package would be available free of charge.

As for the HP 3000 hardware, our comments can only be favourable. The HP 3000 computer and associated peripherals have been very reliable, with a minimum number of failures since it was installed in August 1976. The Hewlett-Packard operating system and software sub-systems have also been dependable. The ease of use and powerful capabilities of the HP software were two of the factors that allowed MINISIS to be developed so quickly. Since the HP 3000 is a general purpose computer system, it is being used at IDRC for administrative data processing tasks, a mailing list system and small word processing applications as well as the MINISIS information management system.

The enclosed information provides a general overview of MINISIS functions and its application as well as the theoretical foundations of MINISIS. I would be pleased to provide you and your colleagues with any further information about MINISIS or its applications.

Yours sincerely

T.A.G. Gavin
Coordinator
Computer Resources

Encls.
TG/JA

Copied to President's Office
File copy via R. Valantin

n.i.o.o. J.E. Woolston
K. Broadbent
G. Morin-Labatut
OVPP

Z730025MAR0M0016201318007: Z0059

File 3-P-87-0151 Vol. 3 Chron

-340-

HEWLETT / / / / PACKARD HONG KONG LTD.

**** Pearl of the Orient ****

HP HK: 11/Floor, Four Seas Building, 212 Nathan Road, Kowloon, HONG KONG.
Telephone No: 3-697446 (5 lines), 3-7211427 (4 lines)

TO: TONY HIDALGO/OTTAWA 2013

COPY: VINCE MANCUSO/ICON 1800
CHI-NING LIU/ICON 1800
GEORGE FANUCCI/HP HONG KONG 7300

People's Republic of China

DURING OUR VISIT TO PRC, THERE WAS MUCH INTEREST IN IDRC-MINISIS. THERE WERE MANY QUESTIONS, AND I THINK IT WOULD BE A GOOD IDEA FOR SOMEONE FROM IDRC TO SPEND SOME TIME IN BEIJING TALKING TO POTENTIAL HP3000 CUSTOMERS WHEN THEY GO TO TALK TO U.N.D.P.

ONE SPECIFIC QUESTION CAME UP, AND I PROMISED VINCE I WOULD ASK YOU TO CONTACT IDRC FOR HELP.

THE DOCUMENTATION CENTER OF THE CHINESE MECHANICAL ENGINEERING SOCIETY NEEDS FOUR KINDS OF DATA THEY WANT TO PUT INTO A DATABASE.

1. INSPEC, "SCIENCE ABSTRACTS, THE INSTITUTE OF ELECTRICAL ENGINEERS, LONDON"

2. ISMEC, "ISMEC BULLETIN, THE INSTITUTE OF MECHANICAL ENGINEERS, LONDON"

COMPENDEX, "ENGINEERING INDEX, INC., USA"

4. METADEX, "METALS ABSTRACTS, AMERICAN SOCIETY FOR METALS"

THEY ASKED THE FOLLOWING QUESTIONS:

A. CAN THEY USE MINISIS TO DO SDI "SELECTIVE DISSEMINATION OF INFORMATION" WITH THE FOUR KINDS OF DATA BASE ABOVE.

B. IS THE INFORMATION AVAILABLE IN MACHINE READABLE FORM, COMPATIBLE WITH MINISIS?

THEY WANT AN ANSWER BY EARLY APRIL IF POSSIBLE.

VINCE OR CHI-NING LIU AT ICON KNOWS HOW TO CONTACT THE ABOVE PARTY. REPLY TO THEM PLEASE.

REGARDS,

GEORGE FANUCCI/HPHK 7300

Reply to Vince Mancuso

-342-

ORIGINAL PASSED TO J. PFEIFER

INTERNATIONAL DEVELOPMENT RESEARCH CENTRE
CENTRE DE RECHERCHES POUR LE DEVELOPPEMENT INTERNATIONAL

CANADA

MEMORANDUM

TO/A: John Woolston, Jim Pfeifer DATE: March 6th, 1980

FROM/DE: Ivan L. Head

SUBJECT/OBJET: MINISIS - China

Attached is a copy of my letter to the People's Republic of China Ambassador. Should one be sent to Hewlett-Packard?

ILH

I.L.H.

James

I gave essentially this information to M. Mancuso of HP when he called before he left for China. He accepted our position and gave every indication of understanding why we prefer to work through the UN.

J.

80.03.08

INTERNATIONAL DEVELOPMENT RESEARCH CENTRE
CENTRE DE RECHERCHES POUR LE DEVELOPPEMENT INTERNATIONAL
CANADA

OFFICE OF THE PRESIDENT
CABINET DU PRÉSIDENT

BOX/C.P. 8500
OTTAWA, CANADA
K1G 3H9
CABLE: RECENTRE

March 4th, 1980.

His Excellency Wang Tung,
Ambassador of the People's
Republic of China,
411-415 St. Andrew Street,
Ottawa, Ontario.
K1N 5H3.

Your Excellency:

Several days ago Mr. Ku of your Embassy telephoned to inform me that information had been received from Peking to the effect that Mr. Vern Jorssen of IDRC might be travelling to China in the near future. Mr. Ku has subsequently been informed that this information is incorrect. Nevertheless, I thought you might wish to learn more of the background to this incident.

When last I spoke to you, I believe I mentioned that IDRC had developed a computer software system that has proved to be highly efficient and in great demand by a number of countries. The system is designed for use on a Hewlett-Packard mini-computer. Your government has arranged with the UNDP for the supply of such a computer and UNDP, in turn, has approached IDRC to ensure that the software system - called MINISIS - can be supplied at the same time. IDRC has indicated to UNDP its willingness to cooperate fully in this respect.

In the meantime, and quite separately from the above, the American manufacturer of this particular

... 2

computer is engaged in the sale of several additional computers to China on a commercial basis. A sales team from the manufacturer will be visiting China in the near future. The manufacturer is aware of the advantage to any purchaser of the acquisition of the IDRC MINISIS software system and had therefore intimated to the Chinese authorities that an IDRC representative, Mr. Jorssen, would join their sales team. Such is not the case.

Should any Chinese purchasers of computer products wish to speak to IDRC about the possible acquisition of the MINISIS software system, we shall be more than pleased to respond. At the same time, we continue to work closely with UNDP as it moves toward the installation of the computer for which it is responsible. The Centre is not, however, in any way related to or connected with the Hewlett-Packard Corporation and I am happy to have this opportunity to clarify any confusion that may have arisen as a result of that company's intimation to the Chinese authorities that Mr. Jorssen would be travelling to China with company personnel.

Please accept, Your Excellency, these assurances of my highest consideration.

Yours sincerely,

Ivan L. Head,
President.

INTERNATIONAL DEVELOPMENT RESEARCH CENTRE
CENTRE DE RECHERCHES POUR LE DEVELOPPEMENT INTERNATIONAL
CANADA

February 27, 1980.

Mr. Ku Hsiung-chiang,
Third Secretary (Commercial),
Embassy of the People's Republic of China,
411-415 St. Andrew St.,
Ottawa, Ontario,
K1N 5H3.

Dear Mr. Ku,

Since our conversation last week, the Centre received a direct cable from China (copy attached) conveying an invitation for Mr. Jorssen of the Centre to visit China. We have yesterday replied to the cable and I enclose a copy of our response for your information.

I should add that further to the interest expressed in the IDRC, Mr. Head is currently preparing a general letter of background information for his Excellency Wang Tung.

Yours sincerely,

S. PLOUFFE

Sylvie Plouffe,
Senior Assistant
to the President

Enclosures (2)

c.c. J.E. Woolston - I.S.
N. Kappagoda - VPP

Head Office / Siège social: 60 Queen Street, P.O. Box 8500, Ottawa, Canada K1G 3H9
Telephone: (613) 996-2321 • Cable: RECENTRE • Telex: 053-3753

P.O. 4415-17

-3d's-

FEBRUARY 26, 1980.

BEIJING, CHINA

IMSTRIMPEX F20248

REGRET THAT THE INTERNATIONAL DEVELOPMENT RESEARCH CENTRE (IDRC) IS NOT NOW ABLE TO ACCEPT THE INVITATION ADDRESSED TO MR. JORSSEN. WE ARE IN NEGOTIATIONS WITH THE UNITED NATIONS DEVELOPMENT PROGRAMME (UNDP) ABOUT PROVIDING OUR COMPUTER PROGRAMS (MINISIS) AND LOOK FORWARD TO COOPERATING WITH YOU IN THE CONTEXT OF THE UNDP PROJECT FOR INFORMATION PROCESSING.

ORIGINAL SIGNED BY
ORIGINAL SIGNÉ PAR
IVAN HEAD

IVAN L. HEAD - PRESIDENT

c.c. J.E. Woolston
Embassy of the People's Republic of China

3-P-77-0151 Part 2

13 February 1980

V.G. Jorssen

MINISIS in China

I have been contacted by Mr. Vince Mancuso of Hewlett-Packard in Palo Alto, California. Mr. Mancuso is responsible for the sale of an HP configuration 3000, Series 3, consisting of 15 terminals, 1 million bytes, 6 7925 disks, 2 tape drives - one 800 and one 1600, 1 line printer and 1 paper tape reader. This configuration was purchased by the People's Republic of China by the Institute of Computing Technology, the contact being Madame Lu Rong-Hua.

Mr. Mancuso was the person who recently sent a cable to China requesting that IDRC be contacted directly for assistance with MINISIS.

This installation in China has absolutely nothing to do with the UNDP project and has come about through the direct efforts of Mr. David Packard who, after a visit to China, committed his company to assist the People's Republic of China to develop computer science technology.

Mr. Mancuso will be leaving for Peking on 3 March and was hoping that the People's Republic of China would send IDRC an invitation to accompany him on this trip.

VGJ/JA

c.c. J.E. Woolston
K. Broadbent

John.

(1) Is this correct? See Cable which is addressed to ISTIC. My understanding was HP would supply several computers some of which (2?) would go to Institute of Computing Technology (BICT) under UNDP credit.

"Institutions" can't invite foreigners to China, only Ministry of Economic Relations with Foreign Countries. Perhaps ISTIC or BICT are already approaching the Ministry, I don't know, but I'm sure they positively want Canadian & IDRC involvement. We should wait & see.

(3) What about Trudeau's invitation. Can he take this up with the Ambassador urgently? K.

INTERNATIONAL DEVELOPMENT RESEARCH CENTRE

CENTRE DE RECHERCHES POUR LE DEVELOPPEMENT INTERNATIONAL

CANADA

13 February 1980 2760-312

Mr. Yao Wei-fan,
Director,
Division of Methodology,
Institute of Scientific and Technical Information of China (ISTIC),
Peking,
PEOPLE'S REPUBLIC OF CHINA.

Dear Mr. Yao:

It was a great pleasure to receive your letter dated 29 December and to learn of your interest in MINISIS. I am also pleased to hear that the literature we sent you has been useful.

My colleagues here at IDRC will be replying to some of your specific questions concerning the HP series and software applications, so I will not attempt to duplicate what they will have to say.

I will be very happy to continue to send pertinent literature on bibliographic systems to your institute and cooperate in any way that is possible. I am, therefore, enclosing a photocopy of an item on machine translation.

We note that UNDP is undertaking to assist ISTIC in up-grading its information systems and that HP computers will form part of their package. The protocol arrangements mean that we can provide MINISIS, but only under UNDP auspices. I understand various approaches have been made through UNDP to get IDRC involved. I, therefore, sincerely hope that very shortly we will be able to provide positive assistance in this matter.

It is my personal wish that we can continue to cooperate and I have every expectation that we will be able to do so. Please be assured that we will be happy to respond whenever possible to your requests.

Yours sincerely,

K. P. Broadbent,
Program Officer,
Information Sciences.

Many thanks for the calender which just arrived!

KPB/ERM
80-OG-132

c.c. S. Akhtar
V. Jorssen/T. Gavin
J. Woolston
OVPP

RECENTRE OTT

HEWPACK PLA C

TDX/1829)

TLX NSC USD PALO ALTO CA 01FEB

LTR

MADAME LU RONG-HUA

COMPUTER GROUP

INSTITUTE OF SCIENTIFIC AND TECHNICAL INFORMATION OF CHINA

BEIJING (CHINA)

CC VERN JORSSEN / IDRC

CC MADAME WANG XIU-MEI / INSTITUTE OF COMPUTING TECHNOLOGY

ACADEMICA SINICA / BEIJING CHINA

CC CHI-NING LIU / ICON HEWPACK

IN ORDER TO FACILITATE YOUR IMPLEMENTATION OF MINISIS WE HAVE

SPOKEN WITH MR VERN JORSSEN ASSISTANT DIRECTOR OF IDRC THEY

ARE EAGER TO PROVIDE YOU ALL NECESSARY ASSISTANCE AND WILLING TO

VISIT YOUR INSTITUTE SINCE OUR TRIP IS DELAYED IT IS POSSIBLE

TO ARRANGE FOR IDRC TO ACCOMPANY OUR VISIT WE FEEL THEIR

EXPERTISE IS EXTREMELY VALUABLE TO YOUR ORGANIZATION AS IDRC

CANNOT DEAL WITH COMMERCIAL VENDORS THEY NEED OFFICIAL INVITATION

FROM YOU FOR ASSISTANCE PLEASE FORWARD AN INVITATION BY CABLE

TO MR VERN JORSSEN CABLE ADDRESS RECENTRE OTT

IDRC WILL BEAR THEIR TRAVELING EXPENSES

VINCE MANCUSO / CHI-NING LIU

HEWLETT PACKARD CO

TELEX 348300 CABLE HEWPACK

中国科学技术情报研究所

INSTITUTE OF SCIENTIFIC AND TECHNICAL INFORMATION OF CHINA

中国北京
PEKING, CHINA

Dec. 29, 1979

Mr. K. P. Broadbent
IDRC
Ottawa, Canada

Kerry
Pl. keep on sending the progress of the MINISIS disc. I pl. send the copies of the same and Head can provide MINISIS itself under UNDP auspices.
1980-02-06

Dear Mr. Broadbent,

On the happy occasion of the eve of the new year 1980, may I wish you a happy new year and that the coming year will bring about a still closer friendly relations between us.

Since my letter of July 12, 1979 in reply to your writing, we have received two packages of materials sent by you in July and October for which we thank you very much.

Now our institute is considering to import a HP 3000 series computer to carry out scientific and technical information storage, processing and retrieval, build up bibliographic data base and provide SDI and on-line retrieval services.

I have learned, from the documents sent by you and Mr. Morin-Labatut, that a HP 3000 series computer has been installed in your Centre and you have successfully developed MINISIS software on the basis of your experience with ISIS system. We are very interested in these two software systems and the rich experience of IDRC. I am also sending a letter to Mr. Morin-Labatut asking for his

Mr. E. P. Broadbent
ILRC
Ottawa, Canada

Dec. 29, 1979

assistance to provide the related information. Meanwhile I really wish you to show your kindness and thank you in advance for any help you will give us. I believe that the friendly cooperation between us, which is pioneered by your visit to this institute, will be further developed with broader vistas.

Thank you again for your friendship and look forward to hearing from you.

Yours sincerely

姚伟范

Yao Wei-fan
Director of the Division of
Methodology
ISTIC

中国科学技术情报研究所

INSTITUTE OF SCIENTIFIC AND
TECHNICAL INFORMATION OF CHINA

中国北京
PEKING, CHINA

Dec. 29, 1979

Mr. Gisele Morin-Labatut
Information Science
IDRC
Ottawa, Canada

IS:

ACTION

GML
Copy to J. L. Woolston.
1980-02-06

Dear Mr. Morin-Labatut,

On July 12, 1979 I sent you a letter in reply to your kind letter of June 4, 1979.

On the happy occasion of the eve of the new year 1980, may I wish you and your colleagues in IDRC a happy new year ann that the cooperation between us will be further developed.

Now our institute is considering to import a HP 3000 series computer to carry out scientific and technical information storage, processing and retrieval, build up bibliographic data base and provide SDI and on-line retrieval services.

We understand that IDRC is richly experienced in the application of HP 3000 series computer and the development of MINISIS soft-ware. We would like very much to have your cooperation and learn the technical details. If possible and convenient, we wish to receive the following information:

1) the major functions of MINISIS software and its range of application;
2) the course and experience in the development of MINISIS software;
3) the main differences between MINISIS and ISIS systems;
4) the characteristics of ISIS system and your experience in the application of it;

Terry
Could you please
reply to this letter
The package will be made available
free, but please do not
send only after clearing
arrangements

Dec. 29, 1979

Mr, G. Morin-Labatut
IDRC
Ottawa, Canada

5) your evaluation and comments on PH 3000 series computer.

We would also be very grateful to you if you could inform us whether MINISIS can be provided to foreign institutions and the condition for this provision.

Thanking you for your kind cooperation and looking forward to receiving your reply.

Yours sincerely

Yao Wei-fan
Director of the Division
of Methodology
ISTIC

3-P-77-0151
Part 2

19 December 1979

Mr. Zhang Qikun
National Project Director
Information Processing and Training
Center for Economic Cooperation
140 Xi-Zhi-Min-Nai Street
Beijing
People's Republic of China

Dear Sir

The International Development Research Centre is an autonomous public corporation established by the Parliament of Canada. Its purpose is to stimulate and support research for the benefit of developing countries. The IDRC activities are carried out by four program divisions. These are: Agricultural, Food and Nutrition Sciences; Health Sciences; Social Sciences; and Information Sciences. I am writing to you in my capacity as the Associate Director of the Information Sciences Division, responsible for Computing Sciences.

As part of the Information Sciences program, IDRC cooperates with UN agencies and institutions to establish worldwide information systems and assist developing countries to participate in such systems. We support the creation of specialized information centres on subjects of interest for development (e.g. particular crops, irrigation technology, social and economic development). We also support improvements to industrial extension services and improvement of library services. We have an internal library and computerized information service which exists to serve IDRC and the Canadian development community. The computerized information service exists as a result of our development of the MINISIS software package which is designed to operate on the Hewlett-Packard Series 3000 minicomputer.

I am taking the liberty of writing to you in response to the news of the installation of five Hewlett-Packard 3000 minicomputers in Peking. I have been contacted by Mr. Chi-Ming Lui of the Hewlett-Packard organization in California, who informed us of the plans to install the five minicomputers in various institutions in Peking. Some of these institutions, e.g. the Institute of Computing Technology, have been in touch with me to obtain information on our MINISIS data base management system. In a communication with the UNDP in New York, I was

...2

informed that you were the national project director for dealing with the Hewlett-Packard installations, and I therefore feel it appropriate to provide you with the MINISIS information.

Over the past few months, we have provided information on the MINISIS software system to a number of people in institutions in Peking. These include Mr. Cheng Hu of the Institute of Computing Technology, Mr. Shao Changyu and Mr. Bao Zhenxi of the National Library, Mr. Chen Sin-fan of the Chinese Academy of Sciences, Miss Pan Jinping of the Computer Department of Fudan University, and Mr. Yao Weifan of the Institute for Scientific and Technical Information in China.

MINISIS is a data base management system for the storage and retrieval of bibliographic information. IDRC, as part of its mandate, has been making the package available to institutions in developing countries, as well as UN agencies. In these cases, we have provided for the training of staff as well as the implementation of the software on the HP installation. For each installation we have negotiated an agreement for the conditions under which IDRC would provide the necessary assistance.

MINISIS is presently being used with the Centre National de Documentation Agricole in Tunisia, and is being planned for implementation in Morocco, Zaire, Ethiopia (UN Economic Commission for Africa, Addis Ababa) and Korea. MINISIS has also been implemented by the International Labour Office in Geneva, as well as the Information Systems Unit of the Department of Economic and Social Affairs at the United Nations in New York. This group is headed by Mrs. Beth Miller. As part of its services, the Department of Economic and Social Affairs provides information produced through MINISIS to Mr. Jilong Bi, Undersecretary General for Technological Cooperation for Development.

For your information, I am enclosing some literature on IDRC and the MINISIS data base management package. I trust you will find it interesting and useful. I would welcome your writing to me should you have any questions. In particular, I should be happy to explain how we may be of assistance and the conditions under which MINISIS could be made available to you.

Yours sincerely

[illegible]

Vernon G. Jorssen
Associate Director
Computer Sciences

VGJ/JA
Encls.

n.i.o.o. J.E. Woolston
J.C. Pfeifer

INTERNATIONAL DEVELOPMENT RESEARCH CENTRE

CENTRE DE RECHERCHES POUR LE DEVELOPPEMENT INTERNATIONAL

CANADA

MEMORANDUM

TO/A: V. Jorssen

FROM/DE: T. Gavin T.A.D.S.

DATE: December 10, 1979

File: 3-P-77-0151
Part 2

SUBJECT/OBJET: HP & Republic of China

Today I received a phone call from:

Mr. Chi-Ning Lui
Marketing Manager for
People's Republic of China
Hewlett-Packard
3495 Deer Creek Rd.
Palo Alto
California 94304

(415) 856-2863

He informed me that Hewlett Packard are installing, through UNDP, 5 HP3000's in Peking. Two of the organizations he mentioned were the Institute of Computer Technology, and the Institute of Technology Information of the Academy of Science. Both of these institutions indicated to him that they are interested in MINISIS. I told Mr. Lui that IDRC was already dealing directly with several organizations in China. (I could not remember the names at the time). Mr. Lui requested that we send him some information about MINISIS so that he could better appreciate the requests of his customers. I suggest we send him the standard "introduction package".

TAGG/sc

3-P-77-0151
Part 2

10 December 1979

Mr. Cheng Hu
Institute of Computing Technology
Academia Sinica
P.O. Box 2704
Beijing (Peking)
China

Dear Mr. Hu

Thank you for your letter dated 3 November in which you request more information on MINISIS. I note that we have sent you the "Introduction to MINISIS" which explains its operation and application for the processing of bibliographic information.

IDRC will be very happy to make our software system available to your institution. We will provide training to two members of your staff (two weeks in Ottawa) as well as implementation of the software in Peking. However, this software is machine-dependent and can only run on Hewlett-Packard 3000 Series hardware. Therefore, it is important that before IDRC can provide any assistance for the transfer of the software to your organization, that you have acquired or have plans to acquire the appropriate hardware. In the meantime, I am enclosing a copy of the Hewlett-Packard 3000 publication which you have requested. It describes the workings of the SPL programming language.

If you need any further information, please do not hesitate to contact me.

Yours sincerely

Vernon G. Jorssen
Associate Director
Computer Sciences

VGJ/JA
ENCL.

Institute of Computing Technology
Academia Sinica
P.O.Box 2704
Beijing,China
Nov.8,1979

Dear Dr.Jorssen:

Thank you for your letter dated 19 Sept. 1979 and " An Introduction to MINISIS".

For this I extend to you my cordial gratitude.

I am interested in learning more about MINISIS and the programming language SPL, please give me some information about SPL and MINISIS.

Thank you very much!

Send my regards to you.

Wish you the new achievements in your work.

Please convey my best regards to Mr.K.Broadbent.

Sincerely,

程虎

Cheng Hu

P.S. Can you give me the copy of the MINISIS ?

C.H.

The Permanent Mission of Canada
to the United Nations

La Mission Permanente du Canada
auprès des Nations Unies

3

-3685-

COPIED TO:

I.L.Head
V.Jorssen
K.P.Broadbent

866 UN Plaza,
Suite 250,
New York, N. Y. 10017

October 4, 1979

IS: OCT 11 1979

ACTION

JEW

Mr. John Woolston, Director,
Information Sciences,
International Development Research Centre,
60 Queen Street,
P. O. Box 8500,
Ottawa, Ontario K1G 3H9

Dear Mr. Woolston,

Further to your letter of September 18, 1979, and our recent telephone conversations concerning UNDP's project for the development of information processing and training in China. I had the opportunity to speak to Mr. A. Bjorgung, Office for Projects Execution. Ms. A. Dilauro had been in touch with Mr. Bjorgung and his comments to me were positive.

As you are aware, Mr. Bjorgung leaves Friday for China in order to review the mini computer proposals which UNDP has received on this project. Based on the joint OPE/China evaluation of these proposals, a contract will be awarded subject to approval by the Contracts Comittee, UNDP, in mid November. To a very large extent, your opportunities to participate in this project are dependent on the successful proposal of Hewlett Packard.

The timing of our exchange of correspondence was fortunate. Mr. Bjorgung is impressed with the MINISIS software package and will include it in his presentation to the Chinese authorities.

.../2

While rushed, there does not appear to have been any additional information which could have been supplied if more time had been available.

I will advise as soon as I have contacted Mr. Bjorgung following his return to New York.

Yours truly,

W. D. Hutton,
First Secretary

3-P-77-0151
Part 2

19 September 1979

Mr. Cheng Hu
Institute of Computing Technology
Academia Sinica
P.O. Box 2704
Beijing (Peking)
China

Dear Mr. Hu

Thank you for your letter dated June 29, 1979, in which you request information on the MINISIS software package.

MINISIS is a bibliographic system, a total library management package which was developed by IDRC and implemented in early 1978. This package was written to run on a Hewlett-Packard 3000 Series computer, the programming language being SPL.

At present it has been implemented in a number of institutions in both developed and developing countries and it is my pleasure to make available to you the attached literature entitled "An Introduction to MINISIS".

Should it be of any interest to you, I would gladly answer any further questions that you might have on the subject.

My personal best regards.

Yours sincerely

Vernon G. Jorssen
Associate Director
Computer Sciences

VGJ/JA
Encl.

4161-15(XIV-D)

中国科学技术情报研究所 IS: JUL 20 1979

INSTITUTE OF SCIENTIFIC AND
TECHNICAL INFORMATION OF CHINA

中国北京
PEKING, CHINA

ACTION

FILE GH-L

July 12, 1979

Mr. Morin-Labatut,
Information Sciences
IDRC
Ottawa, Canada

Dear Mr. Morin-Labatut,

We have received with thanks your letter of June 4 and the valuable materials under separate cover.

As colleagues in the field of STI, we are more than happy to have the opportunity to establish relations with the friends in your centre and learn from your advanced experiences. We wish the friendly relation between us will be further developed.

With my best wishes,

Yours sincerely

Yao Wei-fan
Director
Methodology Division
ISTIC

Institute of Computing Technology
Academia Sinica
P.O.Box 2704
Beijing (Peking),China
June 29,1979

Dear Mr.V.G.Jorssen:

Your letter and a copy of some of the literature which would explain to me its application in the area of library science have been received with pleasure.

For this I extend to you and Mr. K.Broadbent my cordial gratitude.

I am interested in learning more about MINISIS, please give me more imformation about it.

Awaiting your reply and the material.

Thank you very much.

Send my regards to you and Mr.K.Broadbent.

Yours Sincerely

程 虎

Cheng Hu

中华人民共和国

国立北京图书馆

北京（7）文津街7号

376

IS: JUL 4 1979

ACTION

FILE VJ

尊敬的乔森先生：

我非常高兴地收到您5月23日的来信及所附资料。这份资料将有助于我们了解MINISIS系统的情况。对此，谨向您表示衷心的谢意。希望今后加强联系。如能经常获得有关资料，将不胜感激。

请代向布罗德本特先生致意。

顺致

敬礼

北京图书馆 鲍振西

1979年6月27日

People's Republic of China
Peking National Library
Peking 7,
Wenjianjie No. 7

Dear Sir

We were pleased to receive your letter dated 23 May and enclosures. These will be of use to us in understanding the MINISIS system and we are very grateful for your help in this respect. I hope from now on we can step up our efforts so the materials will be a definite help.

Please thank Mr. Broadbent.

Yours

Bao Zhenxi

File: 4161-15 (XIV-D) June 4, 1979

Mr. Wang Shou-wan,
Director,
Chinese Academy of Sciences,
Institute of Scientific and
Technology Information for China (ISTIC),
Peking,
PEOPLE'S REPUBLIC OF CHINA.

Dear Sir:

Mr. Kerry Broadbent, who visited your Institute recently, has asked me to send you some information on the history and development of the DEVSIS project.

The idea of setting up a cooperative international information system for socio-economic development in the Third World was proposed in 1974. It grew out of the realization that a great number of documents (reports, project reports, policy statements, programs and plans) were often very little known outside the institution or department producing them. Many of them are never formally published and are not recorded in any library or information system. Due to lack of knowledge of the existing experience, many studies are repeated and valuable resources are wasted.

A Study Team - sponsored by the International Labour Office, the United Nations Development Program, the Organization for Economic Cooperation and Development, the United Nations Department of Economic and Social Affairs, Unesco and IDRC, - met for several months in Geneva in 1975 to examine the need for, and the feasibility of, an economic and social development information system.

I am sending you under separate cover the report of this Study Team - DEVSIS: preliminary design of an international information system for the development sciences, as well as a brochure on the system, entitled Sharing Knowledge. The report proposed a decentralized cooperative system with national institutions identifying

.../2

and processing the information generated within their own borders and an international intergovernmental organization merging the information and providing the complete international file to each participating country. Thus each country establishes its own national memory and thereby gains access to the information collected and processed elsewhere. It is a model that greatly reduces the cost of obtaining information produced by other countries. The validity of the model has been demonstrated by two existing international information systems: AGRIS (the International Information System for the Agricultural Sciences and Technology coordinated by the Food and Agriculture Organization of the UN) and INIS (the International Nuclear Information System coordinated by the International Atomic Energy Agency).

Following the recommendations of the Study Team, several institutions have identified the literature on socio-economic development produced in their own countries and have prepared records of bibliographic and subject information. These efforts have resulted in the publication of Devindexes for Pakistan, the Philippines, the Federal Republic of Germany and Canada. IDRC, on an experimental basis, is processing records in Ottawa and producing a computer file of information from those countries which wish to participate in the system. In Asia, these include Indonesia, Thailand and Bangladesh. The USSR, the Netherlands and OECD are also committed to providing records for input to the file this year. At IDRC we have developed a library management and information retrieval software system (MINISIS) for a Hewlett-Packard mini-computer to process DEVSIS records and produce indexes. Our file now contains 1500 records. The last issue of Devindex (covering Canadian and German 1977 development literature) was produced on computer and we are currently preparing Devindex 1978 which will have a wider range of input.

In Latin America DEVSIS-related activities are centered firmly on the Economic Commission for Latin America (CEPAL) in Santiago and in Port-of-Spain. The Santiago program is called "INFOPLAN". Its purpose is to create a network linking ministries of planning in Latin America. Two CEPAL groups are involved in this project: ILPES (Latin American Institute for Economic and Social Planning) and CLADES (Latin American Centre for Economic and Social Documentation). CEPAL's computer will be used to process information received from the ten countries participating in the pilot phase of the project. Emphasis will be placed on unpublished literature

generated by the planning process itself. CEPAL will organize a seminar where participants will process samples of documents produced in their own ministries. We expect to see results of this pilot project within two or three months: these results will then be presented to the planning ministers of the region in order to determine whether the system will become fully operational. There is a similar project in the Caribbean which attempts to encourage the information units in government ministries to use the same methodologies as are in place in CEPAL so that the Caribbean countries will be prepared to participate in INFOPLAN if and when it is extended to the whole region.

In Latin America and the Caribbean, the approach to DEVSIS-type program is a regional one. In Africa, a similar program - DEVSIS/Africa - is being proposed by the Economic Commission for Africa; in addition, Tunisia and Morocco have already begun national DEVSIS programs. In Asia, as mentioned earlier, the approach is national and ESCAP is, as yet, not involved.

Finally, the Information Services Unit of the United Nations Department of International Economic and Social Affairs has a small data base of about 1000 UN documents processed using DEVSIS methodologies and the MINISIS software. Apart from the publications already mentioned, I am sending you a copy of Devindex Pakistan 1976 and Devindex 1977, as well as some general information about the project and the computer software used to process the records. I hope that you will find these documents useful.

You may know that IDRC has a regional office for Asia in Singapore. The address is: Tanglin P.O. Box 101, Singapore 10, Republic of Singapore. As of October 1, the Information Sciences Division will be represented there by Ms. Kate Wild. She has been involved with the DEVSIS program since its inception and would welcome an opportunity to discuss the program with you further once she is in Singapore. In the meantime, if I can be of further assistance to you please let me know.

Sincerely,

GML/lg

Gisèle Morin-Labatut,
Information Sciences

c c and to: OUPP

INTERNATIONAL DEVELOPMENT RESEARCH CENTRE

CENTRE DE RECHERCHES POUR LE DEVELOPPEMENT INTERNATIONAL

CANADA

MEMORANDUM

TO/A: J. Woolston

DATE: 14 May 1979

FROM/DE: K. Broadbent

File: 4161-15(XIV-D)

SUBJECT/OBJET: DEVSIS

The Chinese Academy of Sciences, Institute of Scientific and Technology Information of China (ISTIC) showed considerable interest in international cooperative information systems. Although they regularly receive *Agrindex*, it is obvious that they do not comprehend its history, organization or function, and I will be writing to FAO on this.

Of course, it is early days still as far as China's venture into international cooperation is concerned (they admit there were 'difficulties' in the past decade), but they now appear to show a genuine interest. In this regard they were also very interested in my description of DEVSIS. Could we, therefore, send them relevant documents and, perhaps, outline the present position regarding *Devindex*?

The person to write to is:

Mr. Wang Shou-wan,
Director,
Chinese Academy of Sciences,
Institute of Scientific and Technology Information
for China (ISTIC),
Peking,
PEOPLE'S REPUBLIC OF CHINA.

K. B. Broadbent

KPB/ERM
79-OG-374

c.c. K. Wild (file copy)

Kati
Please you will
handle now
25.5.79

INTERNATIONAL DEVELOPMENT RESEARCH CENTRE

CENTRE DE RECHERCHES POUR LE DEVELOPPEMENT INTERNATIONAL

CANADA

MEMORANDUM

TO/A: V. Jorssen

DATE: 14 May 1979

FROM/DE: K. Broadbent

File: 3-P-77-0151 (Pt. 2)

SUBJECT/OBJET: MINISIS and China

A considerable interest in IDRC was shown wherever I went in China. I was only able to talk in general terms about our activities here. Could you, therefore, please send details of our experience with the HP series and development of software to the following:

1. Mr. Bao zhenxi,
   Deputy Director,
   National Library,
   Peking,
   People's Republic of China.

The main interest here is in machine-readable cataloguing of English-language materials. The person who should really also receive information, however, is Mr. Shao Changyu, who is in charge of library mechanization.

2. Mr. Chen Sin-fan,
   Chinese Academy of Sciences,
   Peking Institute of Computing Technology,
   9th Research Department,
   Peking,
   People's Republic of China.

He would also like details of MINISIS.

3. Mr. Cheng-Hu - same address

He would also like some literature. He is also very interested in computer applications to libraries and would appreciate any information on state-of-the-art mechanization, so it might help if we could provide him with a bibliography.

/continued...

4. Mr. Zhou zhiren,
Librarian,
Nanking University,
Nanjing,
People's Republic of China.

He would like any information we can provide on library automation. He would also like to set up an exchange of IDRC publications. He is, however conscious of having little to offer in return at present.

5. Miss Pan Jinping,
Computer Department,
Fudan University,
Shanghai,
People's Republic of China.

She would like as much information as possible on minicomputer development. She is also seeking training in DBMS and would like advice on a suitable university in Canada where she can receive training in DBMS linked with a course on bibliographic information systems. She has done experimental work on machine cataloguing but she has also been asked to experiment with document retrieval systems, so she would be grateful for any copies of suitable material to help in their work.

6. Mr. Chen Dan,
Deputy Librarian,
Shanghai Normal University,
Shanghai,
People's Republic of China.

He would like details on library automation.

7. The Librarian,
University of Communications,
Jiaotong Daxne,
Shanghai,
People's Republic of China.

He would like information on minicomputers and software.

K. P. Broadbent

KPB/ERM
79-OG-375
c.c. M. Schafer

SEP 2 - 1

For

APPROVAL OF UNDP ASSISTANCE TO A PROJECT OF THE GOVERNMENT OF THE PEOPLE'S REPUBLIC OF CHINA

Information Processing and Training Centre for International Economic Co-operation (CPR/79/002)

Report of the Administrator*

Date of present approval:	August 1979
Starting date of project activities:	March 1979 (including previous assistance)
Planned completion date:	February 1984
To be executed by:	United Nations Development Programme
Government implementing agency:	Ministry for Economic Relations with Foreign Countries
Estimated cost of assistance planned under present approval:	$6 068 000
Source of UNDP financing:	Indicative Planning Figure (IPF)

I. Background

1. The Chinese Government as a matter of established policy conducts economic co-operative programmes with foreign countries proceeding from the principle of equality and mutual benefit and making up for each other's needs, and carries out projects in accordance with priorities agreed upon with the other parties concerned. Once undertaken, a mechanism should be established for monitoring continually the status and evaluating the progress of implemented projects. At present, the Government urgently needs to develop a capacity to evaluate and manage effectively a large number of complex domestic and international projects which involve numerous and diverse components. The effective and efficient way by which these projects could be controlled to ensure the optimal use of available resources is through the utilization of a management information system maintained on a modern computer system. Also there is a need to assess large amounts of economic and technological

*In accordance with General Assembly resolution 2688 (XXV) and subsequent authorizations of the UNDP Governing Council, reports are issued seriatim on the approval of UNDP assistance of $250,000 or more (including, if any, assistance financed by Government or by third-party cost sharing).

information which is normally available through computerized data bases. Such data bases include statistical information and references to the key literature in areas including agriculture, energy, industry, engineering, education, transportation, medicine and communications. The use of such informational resources will expedite the transfer of knowledge to China, and also facilitate the rapid dissemination of technological information which should be of potential value and use to other countries.

2. At present, a computer system of the scale necessary to process and analyse the magnitude of information to be maintained does not exist in China. Basic infrastructure in the fields of information processing, computer science, and mathematical modeling needs to be developed nationally through the use of such a modern computer system. It is for this reason that the Government requested UNDP assistance which was approved under the present project.

II. Objectives and activities

3. The immediate objectives of the project are to: (a) initiate a multifaceted training programme in the areas of information processing, computer science and mathematical modelling; (b) establish the Centre for the operation of the information processing system to be acquired; (c) specify, acquire, install and start up a computer system and related equipment; (d) acquire information and data bases and search programme and begin servicing users; and (e) initiate and conduct detailed systems analyses for various application areas and user organizations. To this end, the project will undertake the following activities: (a) surveys of information and data needs of potential users of the computer system; (b) construction of/building for the computer centre and acquisition and installation of a computer system; (c) identification of training needs and placement of trainees and fellows; (d) specification of information and data bases; (e) acquisition of economic and technological data bases; and (f) formulation of an economic and technology information transfer system.

/...

III. Inputs

4. UNDP will provide for the services of experts for seminars and lectures; subcontract technical advisory services; fellowships in information processing, computer science and mathematical modelling; provision of information/data bases and relevant information resources; and the computer system and related equipment.

5. To carry out the activities for which assistance is now approved, the Government will provide adequate manpower for training, and a building and ancillary sites to house the proposed computer system.

IV. Financial Data

6. The expenditure components of the planned assistance are as follows:

	$
Personnel	200 000
Subcontracts	4 888 000
Training	380 000
Equipment	580 000
Miscellaneous	20 000
Total	6 068 000

7. The estimated total value, expressed in US dollars, of inputs provided directly by the Government to the project is $1 587 100 in kind.

- - - - -

Une expérience de formation aux systèmes conversationnels en Chine

CADRE DU COURS

Un accord général de coopération scientifique et technique franco-chinois ayant été signé à Pékin en janvier 1978, une mission française, conduite par le président du BNIST, rencontrait en janvier 1979, les responsables de l'Institut d'Information Scientifique et Technique de Chine (ISTIC*) à Pékin, et signait avec eux un accord sectoriel de coopération en matière d'information scientifique et technique dans lequel la formation tenait une place importante.

Des négociations étant déjà en cours entre l'ISTIC et le Programme Général d'Information (PGI) de l'UNESCO en vue d'organiser en Chine, **un cours d'été de quatre semaines destiné à initier des spécialistes de l'information aux techniques de l'information automatisée**, il fut décidé de conjuguer les efforts de l'UNESCO, de l'ISTIC et du BNIST** pour organiser le cours projeté.

Ce cours a été axé sur le thème, **L'Automatisation de l'information et l'accès en conversationnel**. Il s'est tenu à Pékin du 3 au 28 septembre 1979.

PARTICIPANTS

Quarante participants (29 hommes et 11 femmes) avaient été sévèrement sélectionnés par les soins de l'ISTIC. De formation scientifique et universitaire (mathématique, physique, informatique, télécommunications...), tous avaient eu une expérience pratique en matière de traitement de l'information, mais leurs niveaux et leurs compétences étaient très différents : technicien, chercheur, professeur d'université, ainsi que leur âge (de 24 à 60 ans).

Trente organismes étaient représentés, instituts d'information scientifique et technique pour la plupart, unités de recherches, bibliothèques, universités, localisés à Pékin, Shanghai, Nankin, Wu-Han, etc.

PROGRAMME

Le programme des cours a été ordonné en trois parties.

Première semaine :

— aspects théoriques de l'information scientifique et technique automatisée ;

— étude des technologies nouvelles ;

— impact des systèmes conversationnels :
- sur les utilisateurs,
- sur la société,
- sur les professions de l'information,
- sur l'organisation de l'information aux niveaux national et international.

Deuxième et troisième semaines :

— étude des caractéristiques de la documentation automatisée ;

— possibilités et contraintes pour l'indexation, la recherche et la diffusion sélective de l'information ;

— la recherche et la diffusion sélective de l'information ;

— travaux pratiques de construction d'un thésaurus, mise au point de stratégies de recherches, conditions d'organisation d'un service de DSI au niveau national.

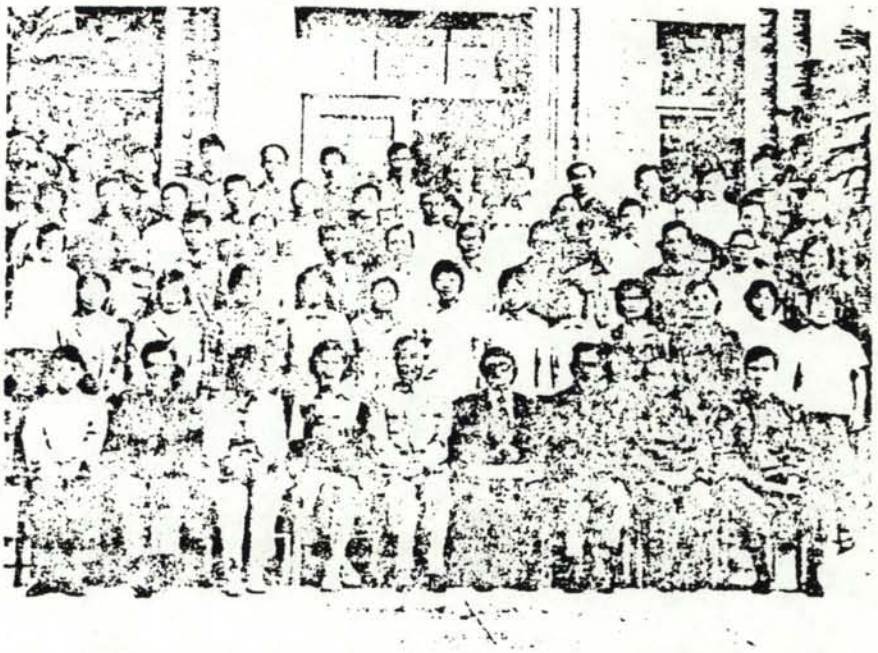
Quatrième semaine

— problèmes spécifiques à la création, au développement et au fonctionnement des banques de données avec application à la chimie.

INTERROGATION EN LIGNE

Dès la deuxième semaine du cours, une liaison téléphonique directe a été établie entre Pékin et Valbonne où est implanté le serveur national d'information scientifique et technique QUESTEL. La liaison en direct n'était pas la première réalisée dans ces conditions : en effet, en juillet 1979, les PTT français avaient fait fonctionner entre la Chine et la France, une liaison téléphonique expérimentale pour présenter les possibilités du réseau de transmission de données Transpac.

Ce qui a particulièrement intéressé les spécialistes chinois de l'information **réunis pendant ce cours, c'est de pouvoir interroger eux-mêmes**, en conversationnel, sous la conduite d'experts français, les bases de données disponibles sur Questel à l'aide du logiciel documentaire MISTRAL et de son langage d'interrogation bilingue, français-anglais.



Les participants à la session de formation aux systèmes conversationnels organisée à Pékin du 3 au 28 septembre 1979 par l'UNESCO, l'ISTIC et le BNIST.

Au premier rang, de part et d'autre du directeur de l'ISTIC : Mmes Moureau (IFF) et Rozenstroch (BNIST) et M. Dutheuil (CNIC).

Les stagiaires se sont également familiarisés avec d'autres logiciels donnant accès à des serveurs étrangers grâce à des interrogations préenregistrées sur cassettes qu'ils ont pu manipuler à leur aise sur un matériel

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* ISTIC : Institute of Scientific and Technical Information of China.

** Le BNIST (Bureau National de l'Information Scientifique et Technique) est remplacé depuis le 19 septembre 1979, par la Mission Interministérielle de l'Information Scientifique et Technique (MIDIST).

d'utilisation très aisée développé par la firme SECAPA à Lyon.

Pour l'interrogation des banques de données chimiques, un terminal graphique avait été acheminé sur place.

ENSEIGNEMENT

Chaque semaine, les cours ont été assurés par deux enseignants, théoriciens et praticiens de l'information, ayant, de plus, une grande expérience de l'enseignement. Leurs interventions se complétaient et s'éclairaient les unes par les autres et la méthode s'est révélée très enrichissante pour tous.

RESULTAT

Le succès du cours est dû initialement à la très bonne coopération entre le Service formation du Programme Général d'Information de l'UNESCO, le BNIST et l'ISTIC. Avec la participation de tous les organismes concernés, ils ont réussi à mettre sur pied en quelques mois une action multilatérale qui exige en général une préparation beaucoup plus longue.

Sur le plan technique, la réussite a été totale : il faut noter que pour la première fois un terminal situé à Pékin, a été branché sur un ordinateur localisé en Europe pour interroger en conversationnel des bases de données scientifiques et techniques.

Pour la première fois également, des contacts inter-associations ont été noués entre l'ADBS et l'Association Nationale Chinoise qui regroupe les spécialistes de l'information, par l'intermédiaire de Mme MOUREAU, chargée à l'ADBS des relations internationales, qui a assuré une partie de l'enseignement.

Ce cours a fourni aux organisateurs chinois de l'ISTIC et aux stagiaires, l'occasion de faire le point des problèmes posés par l'automatisation de l'information. Mais ces problèmes sont eux-mêmes liés à des options tout à fait fondamentales et encore fluctuantes en matière de constitution de réseaux nationaux d'information scientifique et technique et de choix de systèmes à développer.

L'ISTIC qui relève de la Commission d'Etat pour la Science et la Technologie, organisme interministériel, est particulièrement concerné par ces choix. En effet, cet institut doit assurer une tâche de coordination de l'information scientifique et technique à l'échelle nationale. Pour réaliser sa mission, il considère que la formation des cadres est une nécessité prioritaire et a démontré, à l'occasion de la tenue de ce cours, l'importance extrême qu'il y attache.

C. ROZENSZTROCH
MIDIST

Wang's Chinese connection pays off

S.Ch. Morn. Post 2 April 80

By LILY YAU LIM-CHUN

What do you do with a surname like "Wang" if you are in a business which is synonymous with Western technology?

You use your ethnicity for business connections.

And that's what Dr An Wang did in the Asia-Pacific region, though he wouldn't admit it exactly.

The Chinese physicist turned computer manufacturer was in town yesterday en route to China, where Wang Laboratories of the US recently installed 13 middle sized computer systems.

These systems are used in China's national planning agencies and libraries for statistics and data processing.

For the Shanghai-born Dr Wang, the China trip is both business and personal.

He has been invited there by his alma mater, the Chiao Tung University.

This is his first visit to China, since leaving for America 35 years ago to study physics at Harvard University.

While no official talks have been scheduled, Dr Wang didn't rule out the likelihood of business discussions with the Chinese. (After all, the Chinese still are known to do much of their business over tea and a handshake.)

China has expressed some interest in joint ventures with Wang Laboratories, but "we haven't made any definite plans," Dr Wang said.

Of course, China is only one component in Wang's extensive Pacific network.

The Asia-Pacific market is the fastest growing for Wang Laboratories.

Wang Pacific Ltd, the subsidiary for the region, doubled its sales last year, while the overall sales growth for the multinational firm was 35 per cent to 40 per cent.

As one of the 10 fastest growing companies in America, Wang Laboratories expects to increase its sales by the end of this fiscal year (June 30) to US$500 million from $322 million last fiscal year.

Wang Pacific ranks as a industry leader in terms of the number of installations in Hongkong, Taiwan, Thailand, and Singapore.

This ranking is significant, considering Wang Laboratories is admittedly behind several computer giants on an international scale.

"It would take about 20 to 30 years for us to catch up with IBM at current growth rates," Dr Wang said.

IBM is growing at a mere 10 per cent per annum, while Wang is growing much faster.

Several factors have helped to strengthen the firm's position in the Pacific, Dr Wang said.

And there's a "Chinese connection" to each factor.

Wang Laboratories has developed a Chinese word processing device for its computers.

The market potential for such an application is substantial in China, Hongkong, Taiwan, Singapore, and to a lesser extent, Thailand, where it can be adapted to Thai-language usage, Dr Wang said.

Also, Wang Pacific is staffed with mostly Chinese, and it goes without saying that this helps in Asia. (By comparison, only about 10 per cent of Wang Laboratories' US research and development staff, and a negligible number of its marketing staff, are Chinese.)

"At least there is no language barrier," Dr Wang remarked, when asked about the advantage of an overseas Chinese doing business with China.

The same goes for dealing with the other Chinese in Asia, he said.

Dr Wang certainly has not forgotten his Chinese, despite having spent decades in America.

At the same time, he cut the image of an Ivy League professor, as he greeted the press in a bow-tie, at a breakfast meeting yesterday. (Working breakfasts are known to be as American as apple pie.)

The Harvard man said he entered the computer industry purely by chance.

It so happened that when he obtained his PhD, a computer job opened up. He took it.

Computer science was little known in the late forties.

In 1951, Dr Wang founded his own company, a one-man operation.

Today, Wang Laboratories employs more than 10,000 in over 300 branches worldwide.

China and its Research Libraries

One of the significant recent events in world science has been the People's Republic of China's new drive towards modernisation. China has decided to cast aside ideology and political discord, instituted by the Cultural Revolution and the 'Gang of Four' during the decade 1966–1976, and to give top priority to the development of science, technology and science education.

The cultural policies of the past ten years produced a hiatus in education at all levels and in basic scientific research. Intellectuals and scientists were treated as "enemies of the people" and for decades the Chinese have been taught that it is unjust to have a small intellectual elite. As a result the Chinese now estimate that they are 20 years behind the scientific capabilities of the advanced nations, but claim that by the year 2000 they intend to achieve comparable world standards in science.

China has outlined four areas, known as the 'Four Modernisations', as objectives for immediate advancement:

i Advancement of ***Science and Technology***
ii Mechanisation of ***Agriculture***
iii Advancement of ***Industry***
iv Building of a strong ***National Defence***

To achieve such a renaissance, China has adopted a National eight-year Science Development Plan which encompasses 108 "key" projects in 27 spheres of which the following scientific and technological areas are to receive top priority

Agricultures
Energy resources
Space science and technology
Materials
Lasers
Electronic components and computers
High-energy physics
Genetic engineering

To lay a solid foundation for this, China has adopted a 12-point national programme to reconstruct and develop all the basic branches of science and technology. Research strengths will be built up by a force of 800,000 research workers in existing and newly established research institutes. The most relevant points from this programme are:

- the re-establishment of the State Commission for Science and Technology to take charge of science policy and to give greater recognition for academic merit
- to increase greatly state funding for research and science education
- the promotion of greater international scientific cooperation and exchange of information
- that scientists should be encouraged to spend five-sixths of their working time on STI (scientific and technological information) and research, instead of on political issues as hitherto.
- to compile new science and education textbooks to replace dated works.

China has strongly emphasised the rehabilitation of intellect which implies the reconstruction of their education system. Higher education in particular is to get special attention. In a population of almost one thousand million, there are fewer than half a million students above secondary school level in the 400 institutes. With the establishment of new colleges and universities, new curriculae, increased graduate training, there is need for new education materials and books. However, to put these aims in context: the present hope is that there will be 1,000 graduate students annualiy in all disciplines by 1979.

In the acquisition of STI, the Chinese authorities are showing an enthusiasm generated by ten years of denied access to world literature and research

publications. In China today there is a much-reported spirit of reverence for science. However, the research library systems are inadequate to cope with the overwhelming demand for such information; to organise and document all the data currently being obtained will require a radical change in existing library management.

For a population of almost 1,000 million there are only 30 general libraries, and although most institutions and universities seem to have extensive libraries, their collections have suffered during past political upheavals.

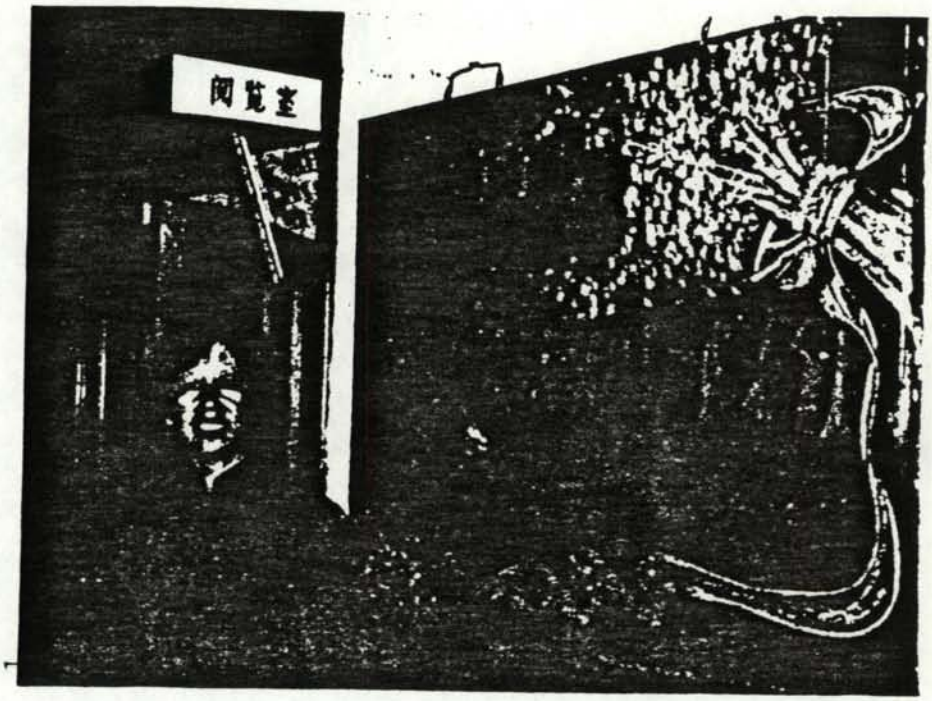
- The largest national library is the ***Peking Library*** which can be considered the National Library. Though it is still housed in its 1931 buildings, it is hoped that its relocation to larger premises will be completed by 1983. This is essential due to the fact that its book stock has increased from 1.4m in 1949 to over 9.5m in 1978. English, Japanese, Russian and Arabic are the predominant languages and of the 10,000 periodicals which the library receives, 8,000 are in English. It is, however, a deposit and reference library providing no public lending services.
- China's second largest library, the ***Shanghai Library***, made up of a collection of smaller libraries, is more of a public library, though access is restricted to ticketholders. Its stock of 6.5m books has a broader subject coverage than Peking, including social sciences and politics as well as science and technology.
- Many of the 70 or so research institutes run by the ***Chinese Academy of Sciences*** were badly affected during the decade of neglect and consequently their affiliated libraries.

With the strong emphasis on research, the establishment of new research institutes and academic facilities, the demand for backup STI will inevitably increase. However, the acquisition and use of foreign scientific and technical publications and reference works could pose several basic problems to Chinese libraries. There are problems relating to copyright and payment, as well as translation and reproduction. As China has no copyright tradition, these matters will have to be clarified. Overtures concerning the copyright issue are currently being made by various foreign publishing companies.

It is apparent that the full potential of scientific and technical developments in China has not yet been achieved and this offers considerable scope for developments in the area of research libraries. It is assumed in the current climate of change that Chinese authorities may wish to benefit from the experiences of other research librarians in the Western World in building up their library infrastructure and systems from the present low base.

CAB visit to China

In March a visit to the People's Republic of China was made to establish contact with organisations responsible for information services. The delegation comprised Dr J. R. Metcalfe (Editorial Director, CAB), Mr E. J. Mann (Director, CBDST, Joint Managing Director, IFIS) and Dr U. Schützsack (Joint Managing Director, IFIS). Their main aims were to improve CAB/IFIS coverage of Chinese literature, to assess the potential for CAB/IFIS services in China and to explore the possibility of collaboration between CAB/IFIS and Chinese information services. The visit lasted five days (23-28 March) and during that time useful discussions were held with staff of the Chinese Academy of Agricultural Sciences (CAAS), the Institute of Scientific & Technical Information of China (ISTIC), and the China National Publications Import Corporation. In addition, there was a meeting with the Head of the Scientific Technology Bureau of the Ministry of Agriculture. The main contact was the Scientific & Technical Institute of the CAAS, which is the national centre for agricultural information; they agreed to discuss with their colleagues the practicalities of scanning/abstracting/translating material for CAB, and were very interested in the potential for exchange visits with CAB, having the use of CAB tapes and filling broken runs of CAB journals in the CAAS library. A tape carrying CAB data has been sent to them for test purposes. At ISTIC, where the main emphasis is on industry, interest was expressed in receiving both IFIS and CAB test tapes. The potential for the future distribution of CAB books and journals in China was discussed at the China National Publications Import Corporation.



Miss Shin Zhen-yi, Deputy Director, Office of Library, CAAS

Information Services in China

During the recent CAB visit to the People's Republic of China, contact was made with two important information services: the CAAS, and its Scientific & Technical Information Institute, and the Institute of Scientific and Technical Information of China (ISTIC).

The CAAS, in Peking, is the national centre for agricultural research; two sections, the Library and the Scientific & Technical Information Institute, are concerned broadly with agricultural information. The CAAS is a government organisation on the same level as the Ministry of Agriculture and the Chinese Academy of Sciences; funds are allocated by the Planning Commission for Science & Technology.

Established in 1957, the library, with a staff of 35, serves research scientists and teachers throughout China. Its holdings comprise 300 000 books and 1500 journals (700 English, 200 Russian, 200 Japanese, 100 German, 100 Chinese, 70 French). The aim is to have a comprehensive collection of Chinese and a selection of foreign material; almost all CAB journals are taken, as are *Chemical Abstracts, Biological Abstracts,* AGRINDEX and other secondary services. An accessions list (book titles and journal contents) is published monthly; users may borrow books by post and a photocopy service for journal articles (for which payment is required) has recently been started. The library works closely with the 60 agricultural libraries located in the Chinese provinces and also with those of the International Maize & Wheat Improvement Center (Mexico).

Established in the late 1950s, the Institute is the national centre for agricultural information. Although government funded, its publications are charged for. Services expanded up to 1966; work ceased during the Cultural Revolution (i.e. until 1976) and is only now approaching 1966 levels. With its staff of 141 (including 40 translators) the Institute functions as an information analysis centre, collating and consolidating information from many sources and disseminating it to scientists, teachers, policy makers etc., throughout China. This is done in the following ways:

Abstracts (in Chinese) are prepared from Chinese and foreign literature in five areas (plant pathology, animal health, pesticides, animal husbandry, agronomy) and published in abstract journals; the total number of records pre-1966 was 20 000 per year, but is currently still below that level. The journals on plant pathology contained many (ca 50%) acknowledged translations of abstracts originally published in *Review of Plant Pathology*. Circulation of journals 5000-10 000, price £1-£2/year. The *Agricultural Science Index*, formerly containing 50 000 citations per year, has not been restarted since the Cultural Revolution. The possibility of Chinese participation in AGRIS is being considered. The *Agricultural Research Newsletter* (in Chinese) contains about 40 digests on a range of agricultural topics, written for the non-specialist. It has a circulation of 400 000 (5p/copy). Short reviews are

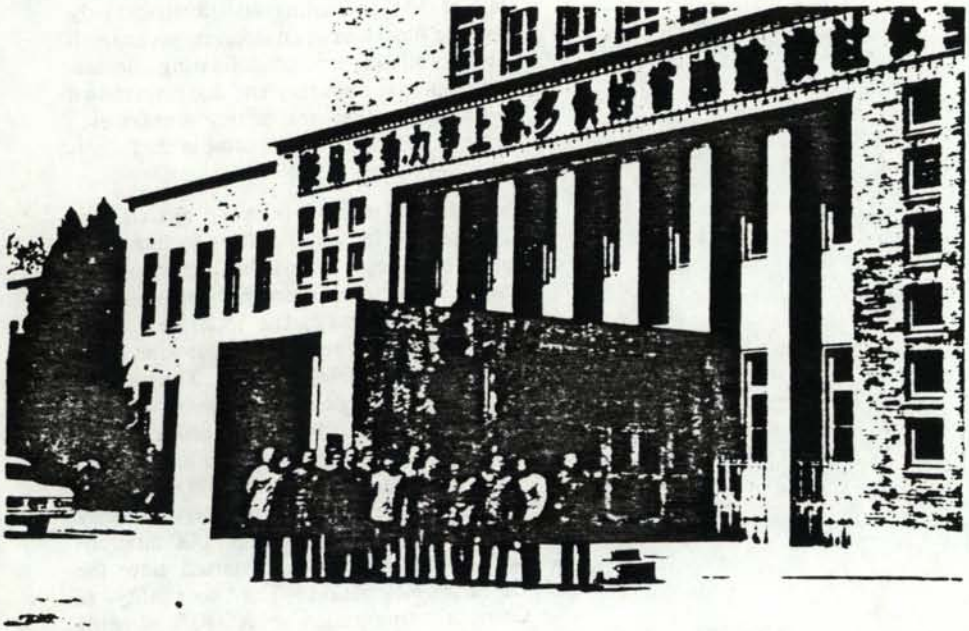
included in the abstract journals, but large reviews are published separately on topics such as 'Statistical data on animal husbandry in foreign countries', 'The management and organisation of agricultural research in foreign countries', 'Levels of agricultural production in foreign countries'. Such reviews take ½-1 year to compile, and their circulation is 5000-10 000 within China. A primary scientific journal (*Scientia Agricultura Sinica*), (in Chinese) was launched recently (CAB is now on the mailing list) and its circulation is said to be 60 000.

ISTIC was founded in 1956; it has branches in Peking and Chungking and its present Director is Mr Lin Zhi Shin.

The main functions of ISTIC are (a) to collect Chinese and foreign literature (including about 7000 foreign journals, patents, standards from 50 countries, industrial brochures and catalogues etc.); (b) to process and catalogue the literature; (c) to review and analyse trends. The main emphasis is on industry while agriculture is left to CAAS. Reading rooms are visited by 400-500 persons from all parts of China each day. A photocopy service is available and 3000-4000 pages are copied daily. While the Peking branch (1200 staff) is mainly concerned with indexing of literature, the Chungking branch (500 staff) does abstracting as well.

The Institute has established good contacts with West Germany (*Gesellschaft für Information and Dokumentationswesen*), and the UK (British Library).

A computer facility was introduced in 1978. The computer is the Japanese TK 70, with a total storage capacity of 12.5 megabytes on disk. Tapes are 9 track and density is 800 b.p.i. Peripheral equipment includes card punches and paper and magnetic tape input. A keyboarding unit, key-tape holding 3072 Chinese characters, is available, and work is in progress to convert these into English characters via an intermediary code. The facility is being used only for experimental purposes.



Mr Kung Shi-tung (Deputy Director, CAAS), Mr Wang Shen-fu (Deputy Director, STII) together with other members of the STII staff

INTERNATIONAL CONFERENCE OF DIRECTORS OF NATIONAL LIBRARIES ON RESOURCE SHARING IN ASIA AND OCEANIA, CANBERRA, 1979

(1) Towards a Wider Library Resource Sharing

DING ZHI GANG *

The Director of our library, Mr Liu Ji Ping, was honoured to receive the invitation extended by Dr Chandler, the Director-General of the National Library of Australia, to participate as one of the co-sponsors in the International Conference of Directors of National Libraries on Resource Sharing in Asia and Oceania. Unfortunately, as his state of health is not good, he is unable to attend, and I have been entrusted with the job of replacing him. I am the deputy director of the library. Please allow me, first of all, in the name of the National Library of Peking, to wish the Conference great success, and to convey to our colleagues good wishes and warm greetings. Also, I would like to take this opportunity to express my respect and sincere gratitude to the whole staff of the Australian National Library as well as all who have undertaken the heavy task of preparation and convocation of this Conference.

This is the first time that the National Library of Peking has attended an international conference of national library directors. It is a great pleasure to be able to get together with librarians of Asia and Oceania to exchange recent developments and views on common problems of immediate concern. Through frank discussion and consultation, I believe the Conference is bound to be helpful and fruitful.

I should like to present now our views and ways with regard to the universal availability and interflow of library resource.

As is well known to all, with the rapid progress of science and technology, the number and forms of world publications have greatly proliferated, especially in the last two decades. Current scientific

* Deputy Director, National Library of Peking, China.

literature is not only diverse in type and stupendous in quantity, but the time needed for publishing has been shortened, and it can be estimated that the multiplying cycle for the issuing of scientific literature will be further shortened. In addition to the traditional forms of publications, various types of audio-visual materials have developed with far greater speed in recent years. It is our opinion that any type of library in the world would find it impossible to acquire all these materials in its own collection; therefore, library co-operation is indispensable in order to be able to comply with the different requests of users. Moreover, in view of the extremely speedy development of modern science and technology, it is absolutely necessary for every library to be aware of the experience and latest achievements of other countries, thus to promote the development of its own science and technology as well as productive forces.

For these and other reasons, those large public libraries and special libraries entrusted with the heavy task of providing readers with the latest materials, apart from improving their inter-library loan service, should take a number of wide-scale measures to improve and reinforce international co-operation in the area of exchange of publications and international lending service. Only in this way can national libraries satisfy most of the urgent needs of their users.

In recent years, major types of libraries in the world have made remarkable progress, accumulated valuable experiences and created many efficient and effective forms in respect to universal availability and interflow of publications. In addition to traditional methods such as international exchange, inter-library borrowing and lending, photoreproduction, new acquisition display, etc., they have pushed forward the dissemination of information and exchange of materials by adopting some new techniques and setting up new facilities, for instance: (1) the electronic means of speedy and precise signal storing, data processing and literature retrieval has made the computer a most powerful tool for dissemination of information; so, nowadays, computers are being used extensively by libraries in many countries to fulfil their daily routines; (2) the use of communication satellites and cable television has made it possible not only to search through the information stored in the data bases within their own countries, but also providing access to large data centres all over the world, thus breaking through the barriers between libraries and boundaries between countries and establishing a world-wide network of information services; (3) the constant improvement and development of techniques in microfilming and photocopying has greatly raised the output rate and efficiency of reproduction, and at the same time tremendously lowered

the cost of photo-duplicates. This obviously has made it possible to disseminate library resource in large quantities; (4) the rapid development of audio-visual materials has been an innovation in library services greatly raising their efficiency as well as the speed of availability of library materials.

In the sphere of international library lending service, many national libraries, in line with the principle of resource sharing and more collaboration between libraries and information organs, have spared no pains in the acquisition and bibliographical control of their own collections as well as in the provision of every convenience for the speedy fulfilment of what is required by their foreign counterparts. They are not only able to fill the gaps of their stocks through international exchange but also to meet their domestic needs through international loan services.

Facts have proved time and again that the practice of "each supplies what the other needs" has contributed much to international resource sharing and exchange of publications. It promotes scientific and technical developments in the respective countries and at the same time improves mutual understanding and friendship among the peoples of the world.

But we ought to see on the other hand that because of differences in national and library conditions, differences in the tasks set, the level of development of resource sharing achieved by different national libraries will necessarily be uneven. There are still many urgent issues that remain to be settled, and it is only through sincere co-operation and patient consultation among us that they can be solved step by step.

With regard to the universal availability and interflow of publications, the National Library of Peking has for a long time placed special emphasis on the following library activities:

1. *International exchange of publications*

Since the founding of the People's Republic of China in 1949 up to the year 1978, the Library has entered into exchange and gift arrangements with over 1700 libraries, scientific institutions and learned societies in 120 countries and localities. Through international exchange, the Library receives every year a large number of publications from abroad, and reciprocates by sending Chinese publications on the basis of equity and mutual benefit. The publications received in 1978 from its exchange partners amounted to 54 785 copies, during the same year, a total number of 111 575 copies were offered. The Library has gradually established exchange relationships with various types of

libraries and societies in most countries of Asia and Oceania, of which, Japan, Australia, New Zealand, India, the Philippines, Singapore, Sri Lanka, Thailand and Papua New Guinea have maintained close ties with the Library. Evidently this not only enriches the collections of libraries and institutions concerned, but also promotes the cultural interflow as well as mutual understanding and friendship among nations. I'm certain that the exchange of publications between our Library and other libraries in the world will surely be strengthened and extended in the years to come.

2. *International Lending Services*

Apart from paying particular attention to the domestic inter-library loan service, the Library has entered into international lending agreements with national libraries and university libraries in 23 countries since the beginning of 1956. Among these countries, Great Britain, Australia, Canada, Finland, Denmark and the Federal Republic of Germany have become the main inter-library lending partners of our Library.

The Chinese people, under the leadership of the Chinese Communist Party, have started again a new long march. They are determined to transfer China into a powerful socialist country with modern agriculture, industry, national defence and science and technology by the end of the century. The people of all nationalities in our country, united as one and with a common purpose, are striving against every difficulty on the road forward to bring about the four modernizations in China.

Following the rapid development of socialist revolution and construction, the libraries in our country have shouldered increasingly heavy loads. There goes a Chinese popular saying: "Food and fodder should go before troops and horses", implying that proper preparations should be made in advance. A variety of library resources are playing an important role in the march towards the realization of the four modernizations in China. Our Party Central Committee and government have attached great concern to the development of library activities, and a plan for setting up a large-scale library with modern facilities is now being prepared. We shall work still harder to make our contribution in turning China into a modern, powerful socialist country by the end of the century, and we shall do everything we can to promote the universal availability and interflow of publications in the future. Before I conclude my speech, I would like to thank once again the Conference organizers for the opportunity to meet together and lay a foundation for further co-operation.

Libraries in the People's Republic of China: A Report of a Visit, June 1976

D. T. Richnell and Howard Nelson

The state of development and the organization of the public and university library service of the People's Republic of China, as seen in June 1976 by a party of British librarians, are described. Particular emphasis is laid on the fact that libraries are not treated as in any way separate from the rest of socialist Chinese society; on the educational and political activities of librarians; and on the efforts which have been made since about 1973 to extend the library service to the grass-roots level. Access to the libraries, the amount of publication, and the tools of bibliographic control are considered, as is the training of librarians. Finally, some of the major libraries are described in more detail, and an impression of the libraries' conservation work is given.

Descriptive accounts of the organization, administration and operation of libraries in foreign countries made by British librarians on the basis of short visits following a pre-arranged itinerary are at present out of fashion. Whether this is right or wrong, it is considered that the present attempt to give some idea of the state of development of libraries in the People's Republic of China in June 1976 is justified, in view of the relatively scant information on the subject in British library literature (but see the list of References) and the particular circumstances of the visit made by the delegation, of which the authors of this article were "leader" and "secretary". The circumstances were succinctly described in a news item from the English-language version of the Hsinhua News Agency's News Bulletin, Friday, 11 June 1976:

D. T. RICHNELL

Director General, British Library Reference Division since 1974. Previously Deputy Librarian, University of London Library; Librarian, University of Reading; Director and Goldsmiths' Librarian, University of London. President of Library Association, 1970. Formerly Hon. Secretary of Aslib.

HOWARD NELSON

Assistant Keeper with responsibility for the collection of Chinese manuscripts and printed books in the British Library's Reference Division. A graduate in Chinese from Cambridge, he has a London M.A. in Social Anthropology, and has done a period of fieldwork in a village in the New Territories of Hong Kong.

Peking, June 9, 1976. Wang Yeh-chiu, Director of the State Administrative Bureau of Museums and Archaeological Data, met and fêted all members of the British Libraries Delegation here this evening. They had a cordial and friendly conversation. The Delegation was led by D. T. Richnell, Director-General of the Reference Division of the British Library, and its members included E. B. Ceadel (Librarian, Cambridge University Library), H. G. H. Nelson (British Library), D. Arrandale (Leeds University Library), A. D. S. Roberts (Bodleian Library), W. H. Liu (Edinburgh University Library) and J. Lust (School of Oriental and African Studies Library, London University).

British Ambassador to China, E. Youde and his wife were present at the banquet. Present were leading members of the Peking Library (the National Library), the Library of Peking University and the Library under the Chinese Academy of Sciences.

The Delegation arrived here on June 7. It will visit southern China before going home (on June 27).

This news item gives some indication of the official nature of the visit, which had been arranged through the Great Britain-China Centre in Britain, and of the composition of the delegation. It does not, however, make clear that with the exception of the "leader" and the "deputy leader", Mr. Ceadel, a Japanologist, all the other members are responsible for the Chinese collections in their libraries and are familiar with some form of the Chinese language and with Chinese library materials. No members, however, were well-equipped to deal with Chinese libraries and information systems in science and technology—a report on the details of these must await a further suitably composed delegation. The itinerary followed was: Peking, Tsientsin and Paoti County, Sian (Shensi Province), Shanghai, Hangchow (Chekiang Province), Changsha (Hunan Province) and Canton (Kwangtung Province), and included visits to important archaeological sites and museums, as well as libraries of many different kinds at different levels.

Two further observations are necessary. The first is that the Chinese nation has had so different a history and recent development from that with which we are familiar in western Europe that to look at it with western eyes and report on it in western terms is fraught with difficulty, without a long excursus into the political and economic development of the country. We have, therefore, thought it best to report what we were told and shown by Chinese colleagues with only a minimum of personal interpretation, rather than attempting an evaluation by western standards, which can lead to perplexity and misunderstanding, without a much fuller study than we can attempt here. In particular, as was stressed to us in the course of our visit, libraries are not separate from the rest of society; they have to play their part in socialist construction, as do all other institutions. It is not very useful to see Chinese libraries in the context of their western counterparts, since by and large they have very different objectives. It is much more helpful to see them in terms of their own recent past, and in the context of Chinese society as a whole. That society, of course, is in constant change; all its

institutions are under continuous questioning. What is true of the library service now is only recently so, and no-one in China would pretend that no further changes are imminent.

The second point is that our discussions on library matters were conducted through interpreters. Without in any way impugning the quality of the interpretation, which was of a high order, it is difficult for us, even after careful cross-checking with our own and Chinese colleagues, to be certain that we are giving an accurate account of what we were told, particularly as much summary is necessary. The authors of this article, therefore, must accept entire responsibility for any mistakes—and for the emphases; our colleagues have not been consulted further.

When the British Libraries Delegation was mooted in 1975 it was readily accepted by the Chinese side. We believe that this was not without a special reason. The Great Proletarian Cultural Revolution, which began in 1966, had involved fundamental issues affecting the role of institutions of an educational, cultural, and research nature, and this included libraries of all kinds. A period of intensive discussion and re-examination ensued, and all our discussions led us to the conclusion that 1973 was an important year in the re-development of the library services of the country. It was, therefore, understandable that after a further two years this re-development should have reached the point where display and discussion with foreign colleagues might lead to a better understanding and the possibility of closer co-operation.

LIBRARY SERVICES AS A WHOLE

We were met on our arrival by Pao Cheng-ku, Deputy Director of the National Library, who visited Britain in 1973, and the first week of our stay was spent in Peking. In three long sessions at the National Library we had the most important exposition and discussions of our visit. At our first session discussion was led on the Chinese side by Director Liu Chi-p'ing, the Chairman of the Revolutionary Committee of the Library, who made an authoritative statement on the library services of the country as a whole.

Here a brief definition and explanation is desirable. Every important organization in China has been, since the Cultural Revolution, governed by a Revolutionary Committee. This Committee is selected after consultations with the mass organizations of workers, peasants and soldiers at the levels appropriate to the levels of the committees; with the personnel of the organization concerned; and with the Party. The Revolutionary Committee is the highest administrative body in each institution, but it is stressed that it works under the leadership of the Party. The local Party committee is elected by all Party members in the institution, and this is the body which is then responsible for laying down broad lines

of policy. The Revolutionary Committee interprets that policy in day-to-day administrative terms; and it is within this frame of reference that local initiative ("the positive factors") is exploited. The Chairman of the Revolutionary Committee, in the case of libraries, may or may not be one of the cadres (professional staff) of the library. If he or she is not, the professional librarians or scholars constituting the senior management are designated Deputy Directors, and are normally members of the Revolutionary Committee. The remainder of the Committee will be composed of representatives of the workers, peasants and soldiers, and other cadres of the library. Two important principles govern the composition of these committees: firstly the "three in one" principle, i.e. that there shall be a balance in the membership between the "older, the middle-aged and the young"; and secondly there shall be an adequate balance between men and women.

Director Liu Chi-p'ing gave a full introduction, which we will do our best to summarize. He said that there were three periods in the development of Chinese libraries. The first was a long period of "accumulating stocks" under feudalism. This we took to mean the formation and development of the great collections of manuscripts and printed books under the imperial dynasties, where the collections were made for the benefit of the emperors, the court and the officials, but were available only to a very limited and privileged minority.

The second was "the semi-feudal, semi-colonial period of libraries under western influence", which dated from the later part of the Ching dynasty (1840) and lasted up to the Liberation of 1949. Director Liu stated that there were some progressive and revolutionary elements in the second period, and he instanced particularly the years 1924–1927. Although he did not say so, our observations suggested that a progressive feature of this period was also the establishment from 1903 onwards of a number of Provincial Libraries in the provincial capitals, to serve the growing needs of the increasing number of the educated intelligentsia. These Provincial Libraries, and their equivalents in some cities, have survived to the present and are a central feature in the library structure of the country.

The third period was that of "the library services in the period of socialist construction". Some of the influences of feudalism and capitalism had survived into the socialist period. The traces of revisionism are still present.

REVISIONISM

Since any discussion of Chinese libraries in June 1976, or indeed any other topic, is bound to introduce reference to "revisionism", it is necessary for us to offer some interpretation, however inadequate, of what this seemed to mean—at least so far as libraries are concerned.

Isabel Hilton, a British Council scholarship student at Peking and Shanghai

universities, writing of present higher education in the *Sunday Times Weekly Review* for 25 January 1976, says: "Before the Cultural Revolution students were recruited to university direct from middle school, with a heavy emphasis on proven academic ability. In China, where facilites vary enormously from the well-endowed urban areas to the remote rural regions, this helped emphasize the gap in opportunity between town and country. Within the cities it discriminated against the children of workers and encouraged those of cadres . . . The Chinese now regard the idea of inborn gifts as Confucian and reactionary." The policies resulting from the Cultural Revolution were designed to combat the ideas of Confucianism and to ensure both equality of opportunity to workers and peasants and that those achieving positions of influence in society shall keep constantly in touch with, and understand the needs of the workers, peasants and soldiers. Revisionism, therefore, in one aspect meant the adoption of policies leading to the development of a new élite, whether intellectual or any other, arising from a concentration on a high-level scientific and cultural development for a minority to the detriment of the development of the masses of the people. This is our interpretation of the significance of the "campaign to criticize Confucius and Lin Piao", who were taken to represent élitist policies in education. The point was repeatedly made to us that the great extension of library services at the grass-roots level, which began in 1973, was the direct result of this campaign.

A retired, but still very active, professor of English Literature in Tientsin, driving through the countryside with us pointed to a slogan across the road: "Communization before mechanization, not mechanization before communization." That, he said, was the heart of the struggle against revisionism. Not that the Chinese are against mechanization—on the contrary, they are constantly seeking it, but it had to be a mechanization subservient to the needs of the workers and peasants, and one which they understand. And they had to be self-reliant in the introduction of innovation. They had to learn from foreign technology, but they must not become reliant on imported foreign technology and influences, whether scientific, economic or cultural. Of course, there were many other facets to "the struggle against revisionism", but these are some that have had an important bearing on the present state of library development.

Director Liu said:

> The struggle against revisionism continues. The present library system is based on revolutionary principles developed in this struggle. Under the unified leadership of the Party Central Committee, the initiative of people is being released to serve their needs at different levels and in different localities and situations. In general, change and development is rapid, but there have been fluctuations, especially before and after the Cultural Revolution. Some years before libraries were affected by revisionist tendencies. The development of library staff was influenced and there were set-backs. We have put libraries on the path of socialist construction through socialist struggle and criticism.

We interpreted this to mean that during the Cultural Revolution libraries of all kinds were criticized for élitist and revisionist tendencies, and that a new course was set in 1973.

"As a result of the past," continued Director Liu, "some libraries have an historical burden." "Burden" was the translation, though perhaps "weight" would have been better. If "burden" was an accurate translation, it was certainly intended to mean that older books were the bearers of ideologically incorrect views. It was certainly not intended to mean that old manuscripts and books were disregarded. On the contrary, as artefacts the same great care is lavished on their conservation as on the preservation of the archaeological treasures and the great cultural monuments of the past. They are also required for purposes of study and criticism, "so that the present may learn from the past".

> We also have the burden of the semi-feudal and semi-colonial period. The predecessor of the present National Library of Peking was organised in this period. In the early years after liberation (1949), changes were made, but libraries were still greatly influenced by revisionism. That is why this kind of library needed thorough remoulding. Even libraries newly constituted since the liberation needed it.
>
> In the present phase of library development four points must be noted:
>
> 1. Libraries must exist to serve workers, peasants and soldiers. Libraries must assert proletarian politics, they must serve production, they must promote revolution. Of course they must also serve the cadres and those intellectuals who are keen to serve the workers, peasants and soldiers.
>
> 2. Libraries must propagandise Marxism, Leninism and the thoughts of Mao Tse-tung. The staff should study, research and propagandise these. That does not mean that libraries only collect such books - the staff also collect, for reference and for criticism, e.g. books on idealism, superstition and so on, in order to learn the opposite. Staff must develop book criticism, e.g. of Confucius. Libraries collect Confucian material as a target for criticism.
>
> 3. Libraries must serve the three major features of the revolution—class struggle, scientific experiment and production. Old books are collected in order to make the old serve the new. Likewise, importance is placed on collecting foreign books with a similar purpose—to make the foreign serve China's needs.
>
> 4. The make-up of library staff is inseparable from these purposes. Under the leadership of the Party, professional library personnel are combined with personnel from the masses, i.e. library workers drawn from the workers, peasants and soldiers. Such people engage not only in productive labour, they also join the management of libraries. A large number hold important positions in library management.

Director Liu concluded:

> In the Chinese library service we should adopt mechanisation for better development, as in agriculture and industry. We need mechanisation. Mechanisation in Chinese libraries lags behind many countries, though some new techniques are being adopted; but we are now at the beginning of planning such development.

This crude summary of Director Liu's exposition in June 1976 is necessarily incomplete. We hope, however, that it does not misrepresent his statements. In

the course of discussion we said that many of the ideas put forward were strange and unfamiliar to us. He seemed to be saying that librarians in China should be propagandists of particular political ideas, as well as professional experts: whereas in Britain we considered that the role of the librarian should be, as a professional expert, to collect material of all kinds, to organize it and to make it available to readers who used the library. Director Liu confirmed that this was so, but he added that the librarian, in going to the masses to propagate political ideas, was not doing so to *tell* them, but equally and perhaps even more to *learn* from them —to discover their real needs and problems, and to help them through the provision of the right kind of services in improving their work and improving production, as well as their political consciousness.

ORGANIZATION

Against this theoretical and general background, the organization of Chinese libraries can be considered, and the practical operations as we saw them described. There are six types of library, each type being under a separate central authority.

1 Public libraries. This includes the National Library of Peking, but in the main comprises the municipal, provincial and county libraries, down to the district, neighbourhood and street libraries in municipalities, and commune and brigade libraries in rural areas. The central authority for these is the State Administrative Bureau of Museums and Archaeological Data. It is emphasized, however, that in this and other cases, the libraries are not centrally controlled, but are largely self-governed and self-financed through Revolutionary Committees at the appropriate level (See Fig. 1, over page.)

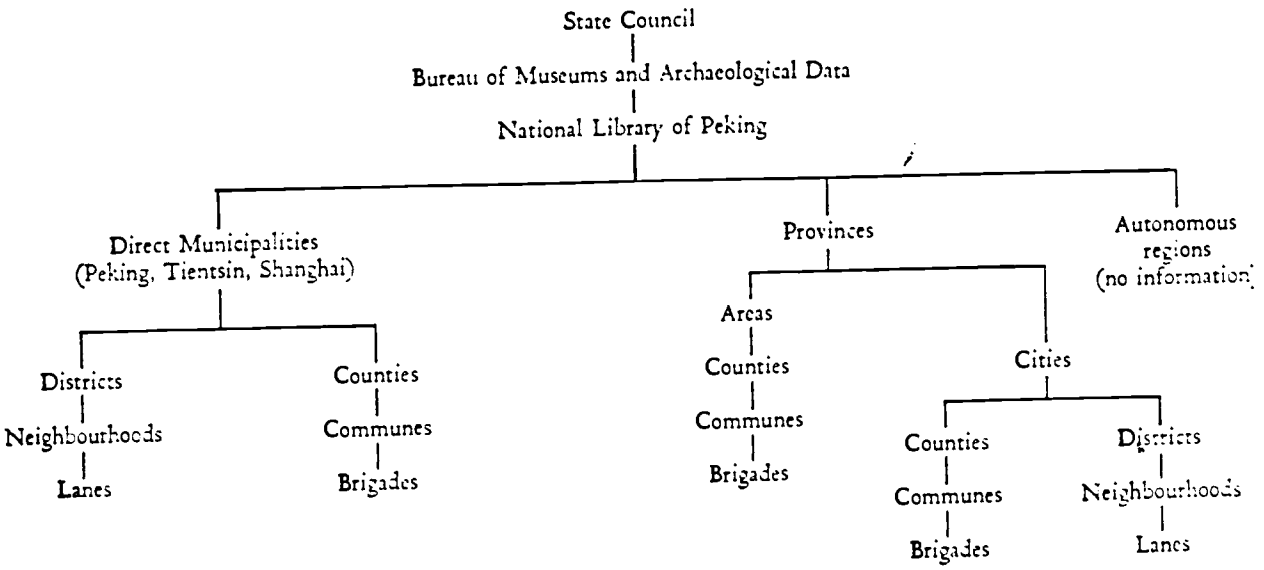
2 Educational libraries. This includes universities, colleges, middle schools and, as yet, some primary schools. The central authority for these is the Ministry of Education. Their funds are received as part of the general funds of the institutions they serve. There is provision of children's books also in some levels of public libraries.

3 Science and research libraries. This includes the Library of the Academy of Sciences and a large number of libraries attached to research institutes throughout the country.

4 Trade union and factory libraries. These are factory and workshop libraries organized by the trade unions within the factory. There are an "enormous" number of these and they make extensive use of the public, educational and science libraries through "group borrowing". Their purposes are not merely technological—they even include books for young children which their parents can borrow for home use.

5 Libraries of central and local administrative organs. These correspond to

FIG. 1—STRUCTURE OF THE PUBLIC LIBRARY SERVICE



N.B. 1. This represents an ideal system, which has not yet been fully realized in practice.
2. There are no libraries at Area level. All other levels are served by libraries (in theory).

what in Britain would be designated Government Department Libraries, but they are also provided for provincial and local government.

6 Army libraries. These are presumably under the control of the Ministry of Defence and are provided down to company level.

"All these," we were told, "are under the leadership of the Party, while using their own initiative to develop ways of meeting their own needs. There is no formal machinery for overall planning of all library services, each of the six types coming under a separate authority. Formal machinery for inter-library co-operation was previously established, but mistakes were made, so it was removed following the Cultural Revolution. At present there is co-operation in accordance with practical needs. It is not a question of one library exercising jurisdiction over another. Within each of the six types there is wide variety, e.g. in the public libraries, the National Library of Peking is very different from the grass-roots libraries."

Our experience, confined to types 1–4, and largely to types 1–2, indicated that, whilst there was in different parts of China a general conformity to a common pattern, there were considerable variations that bore out the claim to local initiative. There are some other observations that can be made with reference to libraries of nearly all kinds that we saw.

Every library of any size has a reading room specifically devoted to Marxism, Leninism and Mao Tse-tung Thought. The stock consists of collections of the works of Marx, Lenin and Mao Tse-tung, together with works of other writers, so far as we could tell, both Chinese and foreign, when works are considered consonant with them. The librarians in these collections do not perform a passive role, and their work is not thus narrowly confined. The Marxism, Leninism, Mao Tse-tung Thought reading rooms are also the focus of all the day-to-day propaganda work of the libraries. The staff compile news-clippings collections relating to current issues and problems, involving the individual readers and specially organized groups in this. They encourage the writing of articles by readers, selected specimens of which are displayed in the reading rooms. They organize discussion groups both inside and outside the libraries, and arrange mass lectures, at the level appropriate to the library, whether national, provincial and municipal or at street and brigade level. In the smaller libraries there is no separate reading room, but the activity figures prominently.

In all the larger libraries there are reading rooms for science and technology with a reasonably large display of current periodicals—quite a few in foreign languages, and open-access to a range of science and technology material—reference books, abstract journals and so on; and a general reading room with few books on open access. There are general catalogues for the collections, but it was stated that not all titles in the libraries were included. Application can be made

for items both for reference and for loan, but there are some that are not available.

Admission policy was not easy to determine with precision. In libraries serving institutions with a limited clientele, universities and schools for example, membership with borrowing rights is available to all members of the institution. Outside readers will be admitted for reference use on the production of a suitable recommendation. In the public libraries at the lowest levels, street or brigade, all the population is eligible for full use. In the case of larger libraries—national, municipal and provincial for example—membership with borrowing rights clearly has to be limited. This appears in some cases to be done on a "first come, first served" principle, but in most cases it is done by issuing a certain number of cards to each factory or other work place, and leaving the selection of readers with borrowing rights to the appropriate committees in the factories, etc. A letter of recommendation is usually required, even for reference use.

There is, however, an extensive system of "group" borrowing from the larger libraries, carried out by representatives from factories and other places. This seems to be the commonest form of inter-library lending. There is also postal inter-library lending, but there are no union catalogues, either at the national or the provincial and municipal level. There is, however, a flow of communication between the large libraries and those at lower echelons, resulting from the "coaching" role of the staff of these libraries. Although it is constantly emphasized that the lower units develop on the principle of self-reliance, it is also emphasized that the higher units have a duty to help in the development, by encouraging their organization, training their staff, advising, and even, in some cases, providing an initial stock on loan.

Because of the great increase, particularly since 1973, in the number of libraries, there is a great shortage of what we should call qualified librarians. There are only two universities with Departments of Library Studies running two-year full-time courses—the University of Peking and the University of Wuhan. These are for methodological studies, and those qualifying are obviously required for the major libraries. Most professional training is, therefore, carried out on the job, by recruiting suitable people with experience in other work, factory, farm or office, and giving them training on a part-time basis in a library at a higher level, by correspondence courses (run by the University Departments) and short courses. The full-time library staff are supported by large numbers of volunteer workers. This is all in line with the policy of preventing the development of narrow specialism and keeping close contact with, and knowledge of, the needs of the masses. Those who go to full-time library schools will have done two years work in farm or factory before they start and will spend two months of each year in the countryside. And the experienced cadres of all ages, except the old and the unwell, are required to attend Cadre Schools for recurrent periods of six months to a year, at which they will study Marxism, Leninism and Mao

Tse-tung Thought, work on the farm, and conduct investigations into the conditions and needs of the peasants.

PUBLISHING ACTIVITIES

One last general point of great importance needs to be made. Large-scale library development can only take place if there is a matching development of a large-scale publishing programme. Publishing in China was interrupted, along with so many other activities, by the Cultural Revolution and has not yet reached a high enough level. The stocks of newly established libraries appear to comprise too few titles—naturally of recent date. The supply of books for the needs of industry, technology and agriculture may be adequate, but in other areas it seems to lag behind the needs. There is little published translation from other languages and relatively little reprinting of older works. There are some excellent research publications, e.g. in archaeology, but the supply of current creative writing is small. Libraries are encouraged to promote the writing of literature. At one brigade library we were entertained to the recitation of poems written by peasants and librarians on the farm. At a municipal library we visited a session of a group convened to discuss and criticize a writer's novel—with the writer. It seems that as yet only a relatively small proportion of such works achieve publication.

Since 1973 emphasis in library work has been placed on the development of a network of libraries for the masses, with less emphasis on the development of research libraries, other than those concerned with science and technology. This does not mean that the latter are starved of resources in the financial sense, but there is less material appropriate to them being published, and their staff are heavily engaged in activities connected with the development of the mass libraries.

The National Bibliography, *Ch'üan-kuo hsin shu-mu*, was published regularly by the Ministry of Culture up to 1966, and it was resumed, under the sponsorship of the National Library, in June 1972. It continued for about a year, and disappeared again. As far as we could gather, no such list is now published (it is not, apparently, a matter of a published list which is not available for export); but a list of current publications is maintained by the Ministry of Culture, and is presumably available, at least to the major libraries, for their selection work. The list itself is restricted, however, and our hosts were rather unwilling to discuss it. We urged upon them the importance, for the work of foreign librarians, of a published National Bibliography to improve the flow of literature and information.

In what follows we shall attempt to fill out the previous general statement of the purpose and position of libraries in the People's Republic of China by des-

cribing in more detail some of the libraries we actually visited. We should repeat our earlier warning: our visit was brief, and our information was gained through the necessarily imperfect medium of interpretation. While we seem to have discerned the overall pattern described by Liu Chi-p'ing, we are also sure that there is considerable regional variation; and we do not know, therefore, to what extent many details may be taken as typical.

NATIONAL LIBRARY OF PEKING

The National Library of Peking, above all, deserves special description. (And we shall make reference to other major libraries where what we saw qualifies and extends the account of the work of the National Library.) Although not in itself very long-established—it dates from 1909, and has been in its present building since 1938—it is now the country's largest library, with a stock of 9·1 million volumes* and 700 staff. Its foundation collections include imperial libraries from the Ming and Ch'ing dynasties (most notably one of the three and a half surviving manuscript sets of the eighteenth-century *Ssu-ku ch'üan-shu*, the imperial collection prepared under the auspices of Ch'ien-lung), private collections going back as far as the Southern Sung (1127–1206), T'ang and Sung manuscripts from Tunhuang, and the Cabinet Library (*Nei-ko ta-ku*) of the late Ch'ing. It has a large stock of foreign books, accumulated in part in the years before Liberation. It is this part of the Library's holding which Liu Chi-ping described as "the burden of the past".

Through the rather formal language now used to describe the events of the Great Proletarian Cultural Revolution, one can sense that from 1966 onwards the library went through a period of intense discussion and bitter self-examination. Here, as throughout the country, a major re-evaluation of the institution's function in the development of a socialist society took place, leading eventually to the formulation of the four main tasks listed by Director Liu. How does the National Library now put these policies into practical effect?

A "Study Office for Marxism Leninism Mao Tse-tung Thought" at Departmental level, with its own reading room, was opened, and now in addition to providing an open access the works of these writers, maintains a large newspaper-cuttings collection arranged by topic, assembles and makes available material for the pursuit of current campaigns, and provides books of current importance (a shelf of the works of Lu Hsun, supported by a small exhibition in the entrance hall). The Department's extra-mural activities include the organization of study classes for the masses, reports, and lectures: the larger of these are given in the

* The figure is not directly comparable with western statistics, since each fascicule in a traditionally cased set counts as one volume. It does, however, provide a measure of the library's growth since Liberation in 1949, when the stock was 1.4 million volumes.

capital stadium, with audiences of up to 18 000. Here, and elsewhere, it seems that the libraries are directing this propaganda work especially to the service and education of the "theoretical ranks of the workers, peasants and soldiers", described as a "newly emerged thing of the Cultural Revolution": we were not able to get a clearer definition of the "theoretical ranks" than this, but suppose them to be, if not the Party members, certainly the politically active members of working units at all levels.

Exhibitions recently held at the National Library include one on ancient Chinese science and technology, as representing the struggle between Confucius and the Legalists; one on the achievements of the model commune, Ta Chai; and one on environmental pollution. Similarly, the Shanghai Municipal Library was holding a major exhibition to mark the 10th anniversary of the beginning of the Cultural Revolution.

Both at the Shanghai Municipal Library and at the Tientsin People's Library we were told of (and at the latter saw in action) the book review classes held under the libraries' auspices. At Tientsin we saw a class of about 20 people who were discussing, with the author, a recently published novel. At Shanghai we were told that the Municipal Library has organized 38 such groups so far, with a membership of more than 300 people. Books are evaluated, in these classes, in the light of Marxism Leninism Mao Tse-tung Thought, and then introduced to other readers by means of articles (350 have been produced at the Shanghai Municipal Library already) written by class participants. Such articles are prominently displayed in library entrance halls and reading rooms.

During the Cultural Revolution more than 30 units assembled at the National Library to establish a new classification scheme. Before 1966 more than ten different schemes had been in use in the National Library alone (an instance of the adverse effects of the period of semi-feudalism and semi-colonialism during which the Library had developed). The full, socialist, scheme now includes some 40 000 headings, and it has been distributed, in suitably simplified form, to libraries at all levels throughout the country. We saw evidence of the new scheme in use in all the libraries we visited, and it is now applied to all new cataloguing, although we gathered that in most of the major libraries there has not been time yet to re-classify more than the Marxism Leninism Mao Tse-tung Thought books. The scheme is still regarded as being in a preparatory stage, and we were not able to see or bring away a copy.

A further service provided by the National Library is the distribution of printed catalogue cards. It is not clear to us how many publications are thus covered, since the Municipal and Provincial Libraries do the same for the libraries in their own areas. The cards prepared and distributed by the National Library have, in addition to the Chinese characters, the title in Pinyin romanization printed across the top. In most of the catalogues we saw filing was by stroke-count; but

Peking University Library had gone over to Pinyin order (whether or not the actual Pinyin form was included on the card), and the current inclusion of Pinyin on the National Library's cards suggests the beginning of a movement towards this much more efficient filing system. Centrally produced catalogue cards are also displayed in cases in many libraries as a means of introducing readers to newly published books.

ACADEMIA SINICA

The library of Academia Sinica is at the centre of the country's research activities; there are at present no graduate students doing research in the universities. Academia Sinica itself is highly decentralized, with branches and special institutes, each of which has its own library, scattered over China. The branch and institute libraries collect only in their own fields; the central library collects comprehensively, and supports the others through loan and limited photocopying facilities. We visited one part of the central library which concentrates on the Natural Sciences. A single processing Department serves both this and the other, Social Science, section. In purchasing, the institutes co-operate with, but are not subservient to, the central library. There is an old union catalogue, though no modern one; a union list of new books is now kept.

Since the Cultural Revolution, the library has been opened more widely than before to workers in universities, colleges, factories and mines: the fact that workers, peasants and soldiers were excluded during the period before the Cultural Revolution is now seen as a failing. The library does its share of propaganda and criticism work, and its extension services are directed towards discovering and satisfying the needs of scientific and technical workers.

It is clear that the library's internal services are also well developed. All staff members of Academia Sinica have a borrowing card, and the library staff advise readers on searching for literature in their fields. They also prepare indexes. With a holding of 4 020 000 volumes, the library seemed to us to be well placed to support research in science and technology, with its collections easily accessible to those needing them.

Much of the holding is, of course, in European languages, and the library has some difficulty in maintaining a staff with expertise in library science, a scientific discipline, and a foreign language. At present the staff includes experts in each area in approximately equal numbers.

An unavoidable delay in our programme prevented us from seeing Fudan University Library, so that in the end, the only two universities we visited were Peking University and Chung-shan University at Canton. University libraries work at present entirely towards the service of undergraduate teaching (which itself is radically changed since 1966, by the shortening of courses and changes in the curriculum). Nevertheless, we were impressed by the new building which

houses the library of Peking University, built in two years and opened on 1 May 1975. The building has 31 reading rooms, with 2400 seats. It has a stock of three million volumes, 800 000 of which are in foreign languages. At both Peking and Canton we were struck by the quality of the reference collection available on open access, and by the number of western-language periodicals taken.

We had sent in advance a list of rare books in the National Library of Peking which we wanted to see, and on our third visit were given a tour of the rare book stack and shown most of the individual items we had asked for. We had chosen them to illustrate various techniques in the history of Chinese book production, but as well as being a lesson in Chinese bibliography, the session provided us with an illustration of the loving care which is being devoted to the rare book collections. Here, and in Shanghai and at Hangchou, where we were given similar displays, we could see that the conservation and careful storage of the old collections is continuing unaffected by changes outside.

Although no member of our delegation was an expert in the public library field, the writers were impressed by the apparent development of "mass libraries" in factories (providing both technical, literary and children's material) and more particularly in residential areas, both urban and rural. The latter have received a considerable impetus since 1973, and although the network was acknowledged to be far from complete and varies from province to province in its degree of development, the best of these libraries (at street, or "lane" level, as the Chinese say, in towns, and brigade level in the countryside) are impressive. The lowest level appears to cater for a population ranging from 1–2000. It is to be hoped that this development continues, whatever the political changes that have ensued since our visit. Illiteracy has now been largely overcome—for the younger generation at least, and the existence of grass-root libraries can only be an encouragement to reading and to the development of a much wider spectrum of publications in the future.

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Publications

Woolston

1 copy of the following:

IDRC-MR25 - *A current awareness bibliography for IDRC-supported fisheries projects*
-- *Agrindex*, Vol. I, No. 8, 1975
-- *Agriasia*, Vol. III, No. 3, 1979
-- *Cassava Newsletter*, No. 8, January - April 1980
-- *Cassava Workers Directory*, May 1978
-- *2000 Abstracts on Cassava*, Vol. I, December 1975
-- *Abstracts on Cassava*, Vol. II, December 1976
-- *Tropical Grain Legume Bulletin*, Nos. 11 and 12, 1978

2 copies of the following:

-- *A new concept in documentation ... Consolidated Information*

3 copies of the following:

-- *Primer for agricultural libraries*, O. Lendvay
IDRC-153e - *SALUS: Low-cost rural health care and health manpower training*

6 copies of the following:

IDRC-092e - *Sharing experience: DEVSIS: information system for decision makers*
IDRC-065e - *DEVSIS - preliminary design of an international information system for the development sciences*
IDRC-118e - *Earthquake history of Ethiopia and the Horn of Africa*
IDRC-149e,f - *DEVINDEX 1978*
IDRC-TS3e - *Optical Character Recognition*
IDRC-TS14e - *Information retrieval and library management: an interactive minicomputer system*
IDRC-156e - *International cooperative information systems*
-- *TECHNONET Asia Newsletter*, Vol. VII, No. 2, April 1980
-- *The AGRIS data base as a support for the selective dissemination of information service BIB/AGRI*, December 1976

12 copies of the following:

-- *Sharing knowledge: a key to detente between the rich and the poor*, J. Woolston, 1976

Multiple copies:

-- *DEVSIS* brochure
-- *TECHNONET Asia* brochure

TRIPS OF INTEREST TO IDRC

Selected List of Reports and Related Papers of Recent Visitors to the People's Republic of China Listed Chronologically

DATE OF VISIT	ORGANIZATION	NAME, LOCATION	PLACES VISITED	TITLE OF REPORT
Sept/Oct 1957 (6 weeks)	French Economic and Technical Mission	Jean Messines, Inspecteur Général des Eaux et Forêts	Guangzhou, Beijing, (Peking), ian, Lanzhou, etc.	'Forest Rehabilitation and Soil Conservation in China', Unasylva, 12(3):103 - 1958, pp. 103-120.
1965, 1971, mid-1974 to 1975	Canadian Embassy, Peking	B. Michael Frolic Prof. Pol. Sc., York Univ., Toronto, (Cultural Attache)	Beijing	"Wide-eyed in Peking: A Diplomat's Diary", NYT Mag; 11 Jan. 1976, p. 21.
April-May 1965	IDS, University of Sussex	C.H.G. Oldham		China Revisited
November 1966	Canadian Medical Group	R.K. Thompson, Walter C. Mackenzie, A.F.W. Peart		"A Visit to the People's Republic of China". (November 1966) The Canadian Medical Assoc. Journal 97:349-60 (August 12, 1967)
1972 (returned after absence of 25 years)		C.T. Ru, Prof. Comparative Education Teachers College Since 1959.		"Education in China: Redness versus Expertness" from Perspectives on Education; pp. 20-29
1972	Center for the Study of Democratic Institutions	Nuri Eren, Turkish Ambassador to China (the first in centuries), former Ambassador to UN	Peking	"Higher Education in China Today" from Center Report, Winter 1973 - 1974, pp. 12-14, Center for the Study of Democratic Institutions.

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DATE OF VISIT	ORGANIZATION	NAME, LOCATION	PLACES VISITED	TITLE OF REPORT
1972		Jerome Alan Cohen	Beijing	"Notes on Legal Education in China" Harvard Law School Bulletin Feb. 1973, pp. 18-21; "A China Policy for the next Administration" Foreign Affairs, Oct. 1976.
Sept. 1972 (6 weeks) also 1958 (6 weeks) 1961 (5 weeks) 1965 (10 days)	Private	Prof. Gilbert Etienne Prof. at Grad. Inst., Asian Doc. and Res. Centre, Geneva.	Hebei, Henan, Hubei, Guangzhou (1958, 1961, 1972)	"China's Agricultural Development" (ed.): "Population and Agr. in China - Present Situation and Prospects", 9/75 (21 pp.); "The Global Process of Rural Dev. in PRC"; "Some Observations on Agr. Res.", 1974, "La voie chinoise - La longue marche de l'économie, 1949 - ", 1974, 349 pp.
11 Dec. 1972 - 6 Dec. 1973	Nat. Comm. on US-China Relations (14 US Specialists mostly polit. scientists). Guests of Chin. People's Inst. f. For. Affairs.	Prof. Alexander Eckstein, Univ. of Michigan.	Guangzhou Beijing Shenyang, Anshan, Nanjing, Shanghai, Hangzhou.	"China's Economic Development - The Interplay of Scarcity and Ideology", 1975, Univ. of Mich. Press, 399 pp. (see esp. pp. 341-369).
May 1973		Dr. Abraham Drobny, Public Health Advisor, Inter-American Development Bank	Beijing, Shanghai	"Impressions on a Visit to some Health Services in the PRC", Bulletin of the Pan American Health Organization, Vol. VII, No. 4, 1973, pp. 57-60.

Selected List of Reports and Related Papers of Recent Visitors to the People's Republic of China Listed Chronologically

DATE OF VISIT	ORGANIZATION	NAME, LOCATION	PLACES VISITED	TITLE OF REPORT
15 June - 6 July 1973	American Medical Delegation, Nat. Ac. of Sciences, Inst. of Medicine (13 members)	Dr. John R. Hogness (Head of Del.); also Leo Orleans, Ruth Lubic, Walsh McDermott, etc.)	Guangzhou, Beijing Shenyang, Anshan, Fushun, Shanghai, Hangzhou.	"Report of the Medical Delegation to the People's Republic of China NAS, Institute of Medicine, Wash. D.C.
Oct. 1973 (also Autumn 1970 and 1971)		Alexander Casella, Ex. Sec'y, Asian Documentation and Research Center, Grad. Inst. of Int'l Studies, Geneva.		"Recent Developments in China's Univ. Recruitment System"; China Quarterly, June 1975;"The Naniwan May 7th Cadre School"; China Quarterly, Apr/May 1974; also audio-tape "Pri.Sec.Ed. in PRC since the C. Rev." taped March 197 "Mao's China, 1972: A Nostalgia fo Yenan", 1935, NYT Magazine, 20 Feb 1972, pp. 12-41, 10 pp.
August 1973 (and 6 weeks in N. China in 1971)	Int'l Develop. Res. Centre, Ottawa, Canada,	Graham Johnson, Ass. Prof. of Anthropology and Sociology, Univ. of Brit. Col., and Elizabeth Johnson.	Pearl River Delta: Guangzhou (Canton), Foshan, etc.	"Walking on Two Legs: Rural Development in South China", IDRC-070e, Microfiche Ed.: $1.00, 72 pp.
8-28 Feb. 1974	The Penn. State University	Dr. John W. Oswald Pres., Penn. State Univ.,plus 16 faculty members (including 3 faculty wives)	Guangzhou, Shanghai, Soochow, Wuxi, Nanjing, Beijing	"Report of Study Tour of Twelve Penn. State University Scholars to the People's Republic of China", Penn. State, Univ. Park, PA 16802, USA, and other reports.

Selected List of Reports and Related Papers of Recent Visitors to the People's Republic of China Listed Chronologically

DATE OF VISIT	ORGANIZATION	NAME, LOCATION	PLACES VISITED	TITLE OF REPORT
April-May 1974 (6 weeks)	Group of 10 Canadian Anaesthetists as part of the Sino-Canadian Exchange of Medical Personnel	Dr. Wolfgang E. Spoerel, Univ. of W. Ontario, London, Ontario.	Beijing, Nanjing, Hangzhou, Guangzhou.	"Acupuncture: Canadian Anaesthetists Report on Visit to China", CMA Journal, 16 Nov. 1974 Vol. III, pp. 1123-1129; "Acupuncture Analgesia in China", Anaesthetist, 25, pp. 197-203, (1976).
10-20 June 1974	Canadian Govt.	L.J. Rodger and 14 others from the Canadian Govt. and industry.	Beijing, Dung Fang Ho, Miyan Reservoir	"Report of the Canadian Seminar Mission on Consulting Engineering Services to the PRC, June 8-23, 1974" pub. by Dept. of Industry, Trade & Commerce, Ottawa, 1974, 70 pp.
Aug.-Sept. 1974	American Plant Studies Delegation			Plant Studies in the PRC, Washington, D.C.: National Academy of Science, 1975.
October 1974 (5 weeks)	Mission to prepare film documentary "The Barefoot Doctor in China"	Dr. Virginia Li Wang, John Hopkins School of Public Health, Baltimore, Md.21205	Shanghai, Hangzhou	"Motivating the Masses for Famil Planning in the PRC", Bulletin o the Pan American Health Organi-zation, Vol. IX, No. 2, 1974, pp. 95-111.
10 Oct. - 10 Nov. 1974	WHO Delegation	Dr. Jose Roberto Ferreira, Jefe del Dep. de Desarrollo de Recursos Humanos de la OPS/OMS		"El 'Trabajador Medico' en China Educacion medica y salud, Vol. 9 No. 1, 1975, pp. 1-4 (Editorial)

Selected List of Reports and Related Papers of Recent Visitors to the People's Republic of China Listed Chronologically

DATE OF VISIT	ORGANIZATION	NAME, LOCATION	PLACES VISITED	TITLE OF REPORT
12 June - 10 July 1975	Sponsored by the US Committee on Scholarly Communication with the PRC	Prof. Dwight Perkins, Harvard Univ. and 10 other scholars, a.o. T.G. Rawski; G.F. Sprague, Univ. of Ill.; C. Peter Timmer, Prof. Food. Ec. Cornell Univ.; A.U. Khan, IRRI, Philippines.	50 factories and 10 communes.	"Chinese Economic Planning" Current Scene, Apr. 1976, Vol.X No. 4, by Thomas Rawski; "Mecha ation in the PRC", Current Scen May 1976, Vol. XIV, No. 5, pp. 1-11; "Agriculture in China Science **) 9 May 1975; "Food Policy in China",*) rev. Dec. 1 31 pp. mimeograph; "Agricultura Mechanization and Machinery Production in the PRC",by A.U.K. Khan, US-China Business Review Vol. 3, No. 6, Nov-Dec. 1976 pp.17-27; "What Color Will The Chinese Use to Trim Their 1976 Tractors", by A.U.K. Khan, Agric ultural Engineering, April 1976, p.14.
June-July 1975	American Rural Small-Scale Industry Deleg.			Rural Small-scale Industry in th People's Republic of China. Berkeley: U. of California Press 1977.
12-28 July 1975	Royal Society of the U.K.	Prof. J.L. Harley, K.L. Blaxter, L. Fowden, J.L. Heslop-Harrison, R. Riley, A. Robertson	Beijing, Dazhai, Xian Wukong, Nanjing, Zheng-chow, Guilin, Guangzhou (incl. Red Star commune).	"Scientific Visits to China unde arrangements between the Acad. Sinica and the Royal Soc., Royal Soc. Del. led by Prof. J.L. Harl F.R.S., 12-28 July 1975", Parts and II, 1976, 66 pp.; Parts III-VIII, 1976, 48 pp. (an agric. mission).

Selected List of Reports and Related Papers of Recent Visitors to the People's Republic of China Listed Chronologically

DATE OF VISIT	ORGANIZATION	NAME, LOCATION	PLACES VISITED	TITLE OF REPORT
1 Aug - 2 Sept. 1975	Sponsored by Nat'l Academy of Sciences Wash., D.C.	P.L. Adkinson, Prof. and Head, Dept. of Entomology, Texas A & M. Univ., College Station, Tex. 77843	Beijing, Chengchun, Kungchuling, Wukung, Shanghai, Changsha, Foshan, Guangzhou	"China Trip Notes Taken on the US Insect Control Delegation Trip to PRC, 1 August - 2 Sept. 1975" 24 pp. memeo.; "China's Insect Control Integrates New and Old",*) CTEN, 15 March 1976, pp. 30-32.
Fall 1975	Nat'l Council for US-China Trade, Wash., D.C.	Peter Weintraub, Ass. Editor, US-China Business Rev., as of Apr. 1976 based in Hongkong	Guangzhou (Fair)	"An Introduction to China's Agriculture", US-China Business Review, March-April 1974, Vol. 1, No. 2, pp. 38-41 (also see from 36 to 45); "China's Minerals and Metals", US-China Business Review, Nov.-Dec. 1974, Vol. 1, No. 6, pp. 38-53; "The China Trader's Peking" US-China Business Review, Jan. - Fed. 1975, Vol. 2, No. 2, pp.23-33.
24 Nov. - Dec. 1975	Guests of the Academy of Sciences	D.R. MacDonald and D.F.W. Pollard, Canadian Forestry Service.	Beijing, Shanghai, Guangzhou.	"Report on the Scientific Exchange in Forestry with the People's Republic: 1973" dated May 1975, restricted, 32 pp.

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1975		Henry and Muffie Brandon, HB, Wash. corr. for the Sunday Times of London.	Five communes in different parts of China.	"Communes Keep Food Going to China's Millions", Smithsonian, Sept. 1975, pp. 98-105.
1975		Audrey Topping	Yenan	"China Pushing Drive to Mechanize Farms", NYT, 4 Dec. 1975.
May-June 1976	National Academy of Sciences' Wheat Studies Delegation.	A.P. Roelfs		Foliar Fungal Diseases of Wheat in the PRC
May-June 1976	United States Wheat Studies Team	R. Busch, A.P. Roelfs, R. James Cook, Robert Olson.		
16 June to 5 July 1976 (17 days visit)	Canadian Gov't.	Dr. B. Ayles, W. Falkner, etc.	Beijing, Wuxi, Shanghai, Guangzhou	"General Diary - Canadian Fisheries Delegation to the PRC - 1976", 43 pp.plus attachments (RESTRICTED DRAFT)
7-26 October 1976.	International Rice Research Institute (IRRI)	Brady, Pathak, Barker, Dedatta, Ou, Khush, Yoshida.	Beijing, Yangtze River Valley Area and Guangzhou.	Rice Research and Production in China. An IRRI team's view.

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1976 (10 days visit)		Dr. Joaquin Cravicto, Head, Departamento de Investigacion Cientifica del Instituto Mexicano de Asistencia a la Ninez (IMAN) and Chairman, UN Consultative Group on Protein Studies.	Guangzhou, Beijing, Shanghai.	"The State of Nutrition of Children in China", Eastern Horizon, Vol. XV, No. 6, 1976, pp. 51-55 and p.61 (a translation from author's comments: "Informe sobre una Visita de Studio a la Republica Popular China", Salud Publica de Mexico, Upaca V, Volumen XVI, No. 4).
April-May 1977	American Schistosomiasis Delegation			Report of the American Schistosomiasis Delegation to the PRC. American Journal of Tropical Medicine and Hygiene 26:3 (1977)
April 1977	British Council High Education Delegation.	David Bethel		
May 1977	Rockefeller Delegation	William Trager Ida Trager		
July 1977	International Rice Research Institute Cropping systems Program Team Visit	H.G. Zandstra R.A. Morris V.R. Carangal	Guangzhou area	Summary Report: Visit of IRRI cropping systems team to PRC 1977.

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June-July 1978	Educational Leaders Delegation	A. Crim, Gene Geisert, O.B. Kiernan, P.B. Salmon.		
Sept. 1978	Engineering Education Delegation	Carl W. Hall		
Sept.-Oct. 1978	Oceanography Delegation	Daniel M. Cohen Tsung-hung Peng		
Nov. 1978	Agricultural Delegation	Bob Bergland David M. Schoonover		
April 1979	CETA	Mathias, Broadbent (IDRC), Kennedy	Beijing, Shanghai, Nanjing, Changsha, Guilin, Guangzhou	CETA Delegation Report published by Washington State University and Dissemination of Scientific and Technical Information in PRC by K. P. Broadbent, IDRC-148e.
June 1980	South Asian Scholars at invitation CASS	Kappagoda and reps. from many South Asian countries	Beijing 9 - 20 June 1980	Kappagoda Trip Report, June 1980

IDRC AND CHINA

IDRC Contacts with persons/institutions in or about China and Centre China-related activities

Division	Activity	Comment
President's Office	Correspondence with Mr. J. R. Kidd, Secretary-General, ICAE, Toronto. (November 1978)	PRC interested in Canada's experience with electronic media in education, especially application of satellites to education.
	J. Y. Battat, Canadian exchange scholar with Shanghai Institute of Mechanical Engineering	Interests - management science and computer science. Met with Alan Rix, Paul McConnell, Vern Jorssen. Note: Kerry Broadbent met and talked with him when he visited Shanghai and is still in contact with him. Battat is writing up his experiences at present. (see attached letter)
OVPP(ASRO)	Study on urban housing in China (3-A-79-4905) $4 700	Study by a Hong Kong graduate student at AIT: to examine house delivery systems, environmental, financial arguments, urban housing strategy.
AFNS	Chinese Fish Culture (3-A-75-4061) $11 500	Translation of original Chinese on status of aquaculture in China.
	Biology and artificial propagation of farm fish	Translation of original Chinese and Japanese materials.
	Bamboo research in Asia	Report of a workshop at ASRO attended by two members of the Chinese Academy of Forestry Sciences, Shi Quantai and Chao jingju.

Division	Activity	Comment
HS	Consultancy (McLeod) re development of exchange programs, health and population in China (3-A-73-A012) $2 500	
	Waste-Water Workshop March 1980	Attended by Professor Guo Zhuyuan, Chinese Environmental Protection Society, Fuwai, Beijing.
	Lindsay consultancy: Study trip to China for four participants from Nigeria and Tanzania to study human waste disposal. (3-A-75-4113) $16 400	
	Delivery of health care in PRC. (3-A-75-4114) $4 000	
	Consultancy: D. Li to show film on Barefoot Doctors in China. (3-A-76-4051) $760	
	Rural water supply in People's Republic of China (wells)	Technical Report series.

Division	Activity	Comment
IS	Health Care Bibliography (3-A-74-4186) $24 900	8 000 distributed
	Kerry Broadbent trip to China in conjunction with CETA, April 1979.	Publication: IDRC-148e
	Communications with following institutions:	
	a) Chinese Academy of Sciences - Institute of Computer Technology	Request for MINISIS software in conjunction with UNDP hardware package. In contact with UNDP over this.
	b) Institute of Scientific and Technical Information of China (ISTIC)	Request for training information specialist.
	c) Fudan University, Shanghai	Advice on MINISIS.
	d) Nanjing University, Nanjing.	Advice on library mechanization.
	e) Shanghai Normal University.	Request for advice on computer software for library project.
	f) Chinese Academy of Social Sciences, Institute of Philology	On-going discussions with Kerry Broadbent on dictionary building.
	g) Jiaotung Univeristy (University of Communications), Shanghai.	On-going dialogue with Kerry Broadbent on terminology.
	h) Shanghai Institute of Electrical Engineering Professor Zhi Bingyi	Computational linguistics - Kerry Broadbent.

Division	Activity	Comment
Social Sciences	Travel support Mary Sheridan (York University) (3-A-78-4053) $2 500	To support data collection on village energy systems and innovation and change in agriculture.
	Visit of Professor Xu Ming, Chinese Academy of Sciences, Institute of Industrial Economics and Chief, Economic Planning Bureau, PRC.	Gave lecture at IDRC, 3 July 1980. Discussion with Divisional representatives.
OVPP	Correspondence between Robert Tellier, based in Peking, and Louis Berlinguet	Tellier, whose wife is working in China with UNDP/UNFPA, has suggested IDRC may like to utilize his services on an informal basis. Address: c/o UNDP/UNFPA, 2 Sanlitun dong jie, Beijing.

Periodicals currently received from or about China in IDRC Library

A. From China

Beijing Review. Beijing (Peking).
Chinese Medical Journal. Beijing.
Social Science in China. Beijing.

B. About China

American Journal of Chinese Medicine. Washington, D.C.
Quarterly Economic Review of China. London.
Population and Family Planning in China. Washington, D.C.
China Quarterly. London.
China Exchange Newsletter. Washington, D.C.
Australian Journal of Chinese Affairs. Canberra.

IDRC Publications on China

IDRC-115e - *Fisheries and aquaculture in the People's Republic of China* by G. I. Pritchard. 1980.

IDRC-056e - *The delivery of health services in the People's Republic of China* by P. Wilenski. 1976.

IDRC-148e - *Dissemination of scientific information in the People's Republic of China* by K. P. Broadbent. 1980.

IDRC-130e - *Science and technology for development: technology policy and industrialization in the People's Republic of China* by G. C. Dean. 1979.

IDRC-TS8e - *Compost, fertilizer, and biogas production from human and farm wastes in the People's Republic of China* by M. G. McGarry and J. Stainforth (eds.). 1978.

IDRC-070e - *Walking on two legs: rural development in South China* by E. and G. Johnson. 1976.

IDRC-038e - *Health care in the People's Republic of China: a bibliography with abstracts* by S. Akhtar. 1975.

Forthcoming publications

IDRC-TS25e - *Rural water supply in the People's Republic of China*

IDRC-TS16e - *Science of the culture of freshwater fish species in China*

-- *A manual on Chinese wells*

SELECT BIBLIOGRAPHY

ON GENERAL TOPICS OF INTEREST

As a Chinese historian recently pointed out in a witty essay on the historical antecedents of China-watching*, If it is accepted that at the end of the eighteenth century more books were published in China than in the rest of the world put together, it is probable that more books are being published today on China than on any other country in the world. If Mao didn't always succeed in producing bumper harvests in his own country he did at least manage to raise a lush harvest of rhetorical blooms outside. Anybody who believes that they have something to relate tries to get into print about China. Even the most minor anecdotes are dutifully recorded. What is worse, normally reputable scholars, desperate to record their findings, have prematurely gone into print, only living to regret the day they did. Chiang Ching had hardly come into prominence before Roxanne Witke burst into prose about the chairman's wife. Small wonder then that the bona fide reader is deluged by a tidal wave of dubious literature about a country which seemingly fascinates us all. How difficult it is then to provide a reading list that is not full of sycophantic outburst, dated material or dubious statistics. At the risk of falling into these traps a select list is set out below:

General

Two books stand out in this category:

1. Simon Leys "Chinese Shadows" published by Penguin Books, U.K. originally published in French under the title "Ombres Chonoise". Leys has also written a good account of the period of the Cultural Revolution entitled "The Emperor's New Clothes" also in Penguin Books.

2. Claude Roy, well known amongst China scholars, and who first wrote "Keys to China" several years ago has just published another very good book simply entitled "Sur la Chine" and published by Gallinard, Paris.

History

For those with the time, inclination and interest, Joseph Needhams life work "Science & Civilization in China" will provide answers to many questions. As a resource it is second to none. Vols. are in the Centre's Libaray. For a general historical overview there is Eberhards "A History of China". Modern history is probably covered best in C.P. Fitzgerald's "A History of Communist China", published by Penguin Books as is Lucien Branco's "Origin of the Chinese Revolution Palo Alto, Stanford University Press, 1971.

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* Lo Hui-min, 'The Tradition and prototypes of the China-watcher', Canberra: ANU Press, 1978.

The Chinese revolution is very well covered by C.P. Snow "Red Star Over China", N.Y. Vintage Books, 1971, now in paperback and available in most libraries. There have been many biographies of Mao but the best has been produced by Jerome Chen of York University here in Canada and is far better than Stuart Schrams "Mao Tse-Tung" (Penguin Books) 1967, the "standard" western bibliography. No Canadian should go to China without reading up something on the life and work of Dr. Norman Bethune the Canadian doctor who worked with the Chinese Eighth Route Army during the war against Japan in the 1930's (see reprint general section).

Travel Encylopedia Guide to China, Geneva (1974) - Nagel

Nagel's 1,500 page guide is useful if you are contemplating a lot of sightseeing, especially to some of the antiquities but it is rather dated and one needs to check against conditions on the ground. The China Handbook by De Keijzer and Kaplan 1979 is available in the Centre and is fairly good for a quick background. The chapter on visiting China's Healthcare facilities is extracted from Victor and Ruth Sidels "Serve the People: Observations on Medicine in the People's Republic of China.

Fodor's People's Republic of China, New York, David Mackay, 1979.

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